MAR 1982

HE 20. 6002: M46/5

FOREIGN MEDICAL GRADUATES AND PHYSICIAN MANPOWER IN THE UNITED STATES

FOREIGN MEDICAL GRADUATES AND PHYSICIAN MANPOWER IN THE UNITED STATES

DHEW Publication No. (HRA) 74-30

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service · Health Resources Administration

Bureau of Health Resources Development
Division of Manpower Intelligence
Office of International Health Manpower Studies
February 1974

A

PREFACE

Early in 1972, the Division of Manpower Intelligence (DMI), now part of the Bureau of Health Resources Development, Health Resources Administration (BHRD/HRA), was asked to assume responsibility for developing an information and analysis base to be used in formulating alternative health manpower education strategies. This effort, termed Project SOAR (Supply, Output, and Requirements), has three functions: (1) development of new and improved data on current health manpower supply; (2) provision of health manpower supply and requirement forecasts; and (3) identification and assessment of possible Federal Government actions in the health manpower production system that might be needed to alter supply to meet forecasted requirement ranges.

The purpose of this Report, as part of that effort, was to provide data and analyses on the foreign medical graduate (FMG) component of physician supply in the United States and to identify and assess possible Federal Government action options in the area of foreign medical graduates. It provides an initial opportunity to address the multiple implications of FMGs in the U.S. health care system and articulates action alternatives with respect to the immigration, training, evaluation, assimilation, and/or emigration of FMGs. (An earlier version of this report carried the designation BHRD/DMI/OIHMS Report No. 74-47.)

Aside from an introductory chapter, the Report comprises two main sections and two appendices. Chapter II reviews the current situation in the United States with respect to the immigration, education and training, licensing, and practice characteristics of FMGs, together with some illustrative information on U.S. medical graduates. Available data presented on FMGs include country of origin, types of visas, age, sex, major professional activity, specialty, and geographic location. Separate sections focus on U.S.-born FMGs and FMGs in graduate medical education. Performance is discussed with respect to examinations, licensure, specialty board certification, and more subjective evaluations. Finally, topics in need of further research and analysis are identified. Sections of this chapter draw on a 1972 publication from the Office of International Health Manpower Studies (OIHMS) entitled *Foreign Trained Physicians and American Medicine* by Rosemary Stevens and Joan Vermeulen.

Chapter III focuses on national policy options vis-a-vis FMGs as they are related to quality, accessibility, and cost of care. Action alternatives are outlined as they relate to these elements of the national health care goal ("access to quality medical care for all Americans at a reasonable cost") and, insofar as possible, the positive and negative sides to each alternative are noted. Appendix A presents a flow chart illustrating the avenues by which FMGs enter the United States, obtain graduate training, and take up other professional activities for a medical career. Appendix B, a discussion of the concept of externality and its relationship to interstate and international migration of physicians, was prepared by Dr. Jesse Hixson, then a member of the DMI staff, but currently with the Social Security Administration, DHEW.

This DHEW Publication No. (HRA) 74-30 was prepared by Betty A. Lockett, Ph.D., Chief of the Office of the International Health Manpower Studies, and Kathleen N. Williams, M.A., of the staff.

W A Lybrand

William A. Lybrand, Ph.D.
Director,
Division of Manpower Intelligence

February 1974

ACKNOWLEDGEMENTS

Consultants outside the Federal Government generously provided thoughtful reviews of earlier drafts of this publication. They included Dr. Kelly West, University of Oklahoma; Dr. Raymond Trussell, Beth Israel Hospital; Dr. Robert Weiss, Harvard University; Dr. Robert M. Farrier, American Hospital Association; Dr. Robert Evans, Rockford School of Medicine; Dr. Kenneth Monroe and Dr. Leonard Fenninger, American Medical Association; Dr. John A. D. Cooper and Mrs. Waltraut Dube, Association of American Medical Colleges; Dr. Aims McGuinness and Dr. Halsey Hunt, Educational Council for Foreign Medical Graduates; Dr. Paul Kelley, National Board of Medical Examiners; Dr. William Sodeman, Commission on Foreign Medical Graduates; and Dr. Paul Kimmel. Particular appreciation is owed to Dr. John Freymann, Director of Education, Hartford Hospital.

The following persons within the Federal Government also reviewed the draft report: Dr. Thomas D. Dublin, Dr. Peter Eichman, and Dr. William A. Lybrand, Bureau of Health Resources Development; Dr. Milton Levine, National Institute of Mental Health; Mr. Maurice F. X. Donohue, Department of Labor; and Mr. Sam Bernsen, Immigration and Naturalization Service. Final responsibility for omissions or errors of fact or interpretation rests with the Division of Manpower Intelligence.

CONTENTS

PREFACE i
CONTENTS iii
Text Tables v
Appendix Tables vii

CHAPTER I – FOREIGN MEDICAL GRADUATES AND HEALTH CARE ISSUES: AN OVERVIEW 1
U.S. Health Care Goals and Issues 3
The Need for Physician Manpower 3
Political Implications 4
Economic Implications 5
Health Care Implications 6
References 8

CHAPTER II – THE FOREIGN MEDICAL GRADUATE COMPONENT OF U.S. PHYSICIAN MANPOWER 9
International Educational Exchange and Immigration 11
Nonimmigrant Visas and Exchange Visitors 11
Immigrant Visas 15
Labor Certification 15
Examinations 16
Educational Council for Foreign Medical Graduates (ECFMG) 16
Federation Licensing Examination (FLEX) 17
National Board of Medical Examiners 17
The Data Base 18
FMGs as a Component of U.S. Physician Supply 19
Countries of Origin 19
– Physicians admitted as immigrants 19
– Physicians admitted as nonimmigrants 22
– U.S.-born foreign medical graduates 22
Selected Characteristics 22
– Age 23
– Sex 23
– Major professional activity 26
– Specialty 26
– Geographical area 26
Foreign Medical Graduates in Graduate Medical Education 33
– Background 33
– Type of house staff position 34
– The National Intern and Resident Matching Program (NIRMP) 34
– Affiliated and nonaffiliated hospitals 36
– Specialty 37
– Geographical area 39
– Country of medical education 39
Performance of FMGs 40
– ECFMG performance 40
– Licensure 41
– Specialty Board certification 47
– Perceptual studies of FMG performance 48

CONTENTS
(Continued)

U.S. Citizens in Medical Schools Abroad: A Special Aspect of the FMG Picture 49
Background 49
COTRANS 51
The "Fifth Pathway" 52
Future Data Collection and Analysis 53
Topics for Data Collection and Research 53
– *Demographic and other characteristics of FMGs* 53
– *Quality of care* 53
– *Immigration and emigration* 54
Analyses 54
References 57
Appendix Tables 61

CHAPTER III – ACTION ALTERNATIVES IN RELATION TO QUALITY, ACCESSIBILITY, AND COST OF HEALTH CARE 63
Background 65
The Current Situation 66
Quality of Medical Care 66
Immigration Policies and Laws 66
Graduate Medical Education 67
Educational and Professional Requirements 68
Additional Training 70
Accessibility of Medical Care 71
Financial Aid 72
Expand COTRANS 72
Cost of Medical Care 73
Expand Domestic Output 73
Expand COTRANS 74
Orientation and Review Programs 74
Conclusion 75
References 77

APPENDIX A – FOREIGN MEDICAL GRADUATE IMMIGRATION, EDUCATION, AND CAREER PATHWAYS 79

APPENDIX B – EXTERNALITY AND THE FMG ISSUE 85

TEXT TABLES

Table Number		Text Page
1.	Foreign medical graduates in comparison with all physicians in the United States, by major professional activity: 1970	11
2.	Foreign physicians and surgeons admitted to the United States in comparison with number of U.S. medical graduates: 1962-73	12
3.	Foreign physicians and surgeons admitted to the United States as immigrants, by country or region of last permanent residence: 1953-72	20
4.	Foreign physicians and surgeons admitted as immigrants, by region of last permanent residence: 1966, 1969, and 1972	20
5.	Foreign physicians and surgeons admitted as immigrants, by region of birth and by region of last permanent residence: 1972	20
6.	Foreign physicians and surgeons who changed from nonimmigrant to immigrant status, by region of birth: 1966-72	21
7.	Number and percent of foreign physicians and surgeons admitted as immigrants who changed from nonimmigrant status: 1966-72	21
8.	Foreign physicians and surgeons admitted as immigrants, by region of birth and visa status: 1972	21
9.	Foreign physicians and surgeons admitted as nonimmigrants, by region of birth and region of last permanent residence: 1972	22
10.	U.S.-born foreign medical graduates in the United States, by country of graduation: 1970	22
11.	Physicians in the United States under and over 40, by country of graduation: 1963, 1967, and 1970	23
12.	Physicians in the United States, by age group and country of graduation: 1963, 1967, and 1970	24
13.	Physicians in the United States, by sex and country of graduation: 1963, 1967, and 1970	25
14.	Physicians in the United States under 40 years of age, by sex and country of graduation: 1963, 1967, and 1970	25
15.	Foreign medical graduates in comparison with all physicians in the United States, by major professional activity and country of graduation: 1970	25
16.	Physicians in the United States, by specialty and country of graduation: 1970	27
17.	Physicians in the United States in selected specialties, by country of graduation: 1970	28
18.	Foreign medical graduates in the United States in selected specialties, by major professional activity: 1970	28
19.	Foreign medical graduates in metropolitan or nonmetropolitan areas of the United States, by region of origin: 1970	29
20.	Number and percent of physicians in each State, by country of graduation: 1970	30
21.	Distribution of U.S. medical graduates and foreign medical graduates, by State: 1970	31
22.	Ten highest ranking States on basis of population, foreign medical graduates, U.S. medical graduates, and proportion of foreign medical graduates: 1970	32
23.	Number of States plus the District of Columbia, by proportion of foreign medical graduates in specified major professional activity: 1970	33
24.	Number of approved internships offered in the United States and its territories and possessions in relation to graduates of United States medical schools: selected years, 1939-40 through 1973-74	34
25.	Foreign medical graduates in graduate training programs in the United States; 1950-51 through 1972-73	35
26.	Foreign medical graduates serving as interns and residents in affiliated and nonaffiliated hospitals in the United States, by size of hospital: 1972	36
27.	Number of foreign medical graduates serving as residents in affiliated and nonaffiliated hospitals in the United States: 1963-64 through 1972-73	37
28.	Foreign medical graduates as percentage of house staffs in individual hospitals: 1967	37
29.	Foreign medical graduates as percent of all residents, by specialty: 1963-64 through 1972-73	38
30.	Total residents and foreign medical graduates in residencies, by specialty: 1970	39

TEXT TABLES
(Continued)

Table Number		Text Page
31.	Examinations given by the Educational Council for Foreign Medical Graduates: 1958-73	40
32.	Percentage distribution of persons taking ECFMG examination, by range of scores and country of graduation: 1969	41
33.	New licentiates representing additions to the medical profession, by country of graduation: 1950-72	41
34.	Foreign medical graduates examined for licensure, by State: 1964-72	43
35.	Physicians examined for licensure, by State of examination and country of graduation: 1972	44
36.	Foreign medical graduates examined for licensure by region of graduation: 1972	45
37.	Foreign medical graduates in the United States, by country of graduation and specialty board certification: 1970	46
38.	Foreign medical graduates in the United States, by language group and specialty board certification: 1970	47
39.	Number of specialty board certifications, by board and country of medical education: 1972	48
40.	Application activity to U.S. medical schools: 1947-48 through 1972-73	50

APPENDIX TABLES

Table Number		*Text Page*
1.	Foreign physicians and surgeons admitted as immigrants, by region and country of last permanent residence: 1966, 1969, and 1972	91
2.	Foreign physicians and surgeons admitted as immigrants, by region and country of birth and region and country of last permanent residence: 1972	93
3.	Foreign physicians and surgeons admitted as nonimmigrants, by region and country of birth and region and by country of last permanent residence: 1972	95
4.	Foreign medical graduates in the United States, by specialty and major professional activity: 1970	97
5.	Proportion of foreign medical graduates in each location of the United States, by major professional activity: 1970	99
6.	Number of residents in affiliated and nonaffiliated hospitals in the United States, by specialty and country of graduation: 1972	101
7.	Residents in hospitals, by geographic division and State of practice and country of graduation: 1972	103
8.	Percentage of foreign medical graduates passing ECFMG examination, by country of graduation: 1970-72	105
9.	Foreign medical graduates examined for licensure, by State: 1964-72	107
10.	Foreign medical graduates examined for licensure, by country of graduation: 1972	109

CHAPTER

1

FOREIGN MEDICAL GRADUATES AND HEALTH CARE ISSUES: An Overview

BLANK PAGE

BLANK PAGE

U.S. HEALTH CARE GOALS AND ISSUES

National debate about the status of health care in America today has engaged three groups – government, professionals, and consumers, each of which has sometimes complementary, sometimes conflicting,goals. The overriding and binding goal, however, has been put forth as "access to quality medical care for all Americans at a reasonable cost." Progress toward that goal, within the Federal Government, has taken the form of a national health strategy which would follow four avenues: build upon existing elements; provide equal access to health care without regard for racial, economic, social, or geographical barriers; balance supply and demand in terms of manpower and facilities; and organize the health care system more efficiently to enable it to meet increased demands of the future.

The health care issues around which the national debate tends to center involve three factors: quality, accessibility, and cost. The quality issue has at least two facets: maintaining the traditional high standards of care, research, and education which are the hallmark of American medicine, and ensuring that the same levels of quality apply to all citizens equally. Similarly, the question of accessibility has several aspects as well: providing a professionally acceptable level of health care services and resources to the entire citizenry with a minimum of travel and waiting time, and establishing and maintaining a health manpower pool of sufficient size and appropriate training to meet increasing demands for primary, secondary, and tertiary health care in all specialties and in a variety of private and public settings. Finally, the matter of costs has two features: finding a means of containing spiraling costs of health care (especially, for example, hospital costs) and developing innovative ways of financing health care and health professions education so that no one group is priced out of the health care market or shoulders an unfair portion of expenditures for care or education.

Health care being a singularly labor-intensive endeavor, manpower clearly is the central factor with which policymakers, professionals, and consumers alike must deal. The multitude of solutions proposed to address some of the problems inherent in the quality/access/cost issues all reflect, to one degree or another, the understanding that new forms of organizing and financing health care must first and foremost be concerned with the manpower component.

The more all-encompassing actions initiated on a national basis to further the basic goal include proposals designed to expand health maintenance organizations, to extend health planning at all levels, and to advance research and prevention programs in specific categorical areas. Proposals targeted more specifically on health manpower have also been formulated, including legislation for training health manpower and establishing a National Health Service Corps to bring services to rural and inner city areas. Outside the Federal Government, some progress can be discerned in past expansion of the domestic output of medical and other graduates and in the analysis of functions and task delegation within the entire health care system. These steps, significant as they are and have been, have not been sufficient to provide the basic level of health care services implied in the goal stated at the outset.

THE NEED FOR PHYSICIAN MANPOWER

As a consequence of the foregoing, an additional response to the health needs of America has developed – namely, the recruitment and utilization of foreign manpower, in particular foreign-trained physicians. That part of the felt need for physicians in the United States which has not been met through our own resources has been partially filled by doctors drawn from other nations, until the foreign medical graduate component of the U.S. physician manpower pool has become quite substantial and visible. Foreign medical graduates (FMGs) have entered the United States in increasing numbers in recent years and are now an important component of physician supply in this country (1). The following statistics are illustrative.

Approximately one of every five physicians in the United States was an FMG in 1970. In 1971, over 68,000 foreign medical graduates (active and inactive)

were included in the American Medical Association (AMA) registry of physicians in the United States. It is known that a large number of FMGs in the United States, estimated at 10,000 or more, are not included on the AMA registry. Over one-third of all interns, residents, and other physician trainees in U.S. hospitals approved for such training are FMGs. FMGs (excluding Canadians) accounted for 46 percent of new licentiate additions to the medical profession in 1972. Between 1950 and 1970, the ratio of all active physicians to population increased from 141 per 100,000 to 154 per 100,000. Without the influx of FMGs during that period, the ratio of active physicians to population would have been virtually the same in 1970 as it was in 1950, assuming no other changes in health manpower production had occurred.

The potential size of the annual influx of FMGs into the health care system is capable of matching the output of U.S. medical schools. For example, in the ten years from 1964 to 1973, the annual number of FMGs admitted to the United States (as immigrants or exchange visitors) went from 6,767 to 11,732. U.S. graduates went from 7,336 to 10,391 in the same period.

Many factors currently drawing FMGs to the United States seem likely to continue. The economic incentive is strong; the average residency salary is higher than the fully licensed physician's annual income in many countries of the world. The number of salaried positions in the U.S. market has been increasing. The opportunities for graduate medical education and for satisfying, rewarding practice in those countries from which the largest proportion of FMGs are emigrating are not likely to be enhanced appreciably for many years to come.

Should the United States health care system continue to utilize FMGs in significant numbers? This is a complex question with political and economic implications which include, and go beyond, the health care problems faced by this Nation.

Political Implications

Internationally, the increased flow of foreign medical graduates to the United States has some clearly negative implications. Physician migration from developing countries to the United States has been mentioned as a major element in the criticism directed toward this Nation for its role in the "brain drain" phenomenon. The United States is vulnerable to the charge that it indirectly contributes to poor accessibility of health care in the developing nations.

The total number of physicians involved in international migration has been estimated to be on the order of 100,000 annually (2). The magnitude of the flow is so compelling that member nations attending the 25th World Health Assembly in 1972 requested the Director-General of the World Health Organization (WHO) to intensify the preparation and implementation of a worldwide study of the migration process of physicians and nurses, and its implications for health care in all regions of the world, particularly developing countries (3). Initiation of this study by WHO follows studies and reports sponsored by Unesco and the United Nations Institute for Training and Research (UNITAR) (4, 5, 6). These increasing pressures to study the phenomenon of health professionals migrating from developing to developed countries foreshadow the possibility of diplomatic or economic repercussions by some countries against the United States if there is a continued or increasing flow of their physicians to this country.

Some experts in the developing countries, however, stress the point that unilateral steps to curtail or stop migration of physicians and other health personnel would not, in the long run, be in the best interests of either their countries or our own. For example, a report from the 1970 international conference on the migration of medical manpower sponsored by the Josiah Macy, Jr., Foundation stated that although continued and significant losses of medical manpower from the developing to the developed nations should receive urgent study, "it is important that governmental or statutory restrictions should not be applied to the international movement of doctors" (7). These experts are aware of the long-term direct and indirect values of education and training in the U.S. medical care system.

Certain other political implications related to the issue of the increasing utilization of FMGs are more domestic than international in nature. The number of American college graduates applying to American medical schools has been increasing steadily. Applicants to American medical schools numbered 25,000 in 1970, almost 29,200 in 1971, and over 36,000 in 1972; there are about 40,000 for the current year. To accommodate these applicants, there are at present approximately 13,790 first year places (8). The net effect is that while some U.S. applicants are necessarily turned away from the medical schools because of a lack of space, Americans find themselves dealing more frequently with foreign physicians, especially in hospitals. The question arises as to why funds cannot be allocated so that more U.S. citizens could be trained to fill these positions. Thus, Federal aid to programs which would improve graduate educational employment opportunities for

foreign nationals, while U.S. citizens are denied the opportunity of an undergraduate medical education, will undoubtedly engender resentment.

Economic Implications

The current utilization of medical education and health care delivery resources within the United States has been profoundly influenced by the long-term influx of FMGs. In many places, the structure and operation of the system has accommodated the increasing numbers of FMGs who seek graduate medical education in this country as well as those who wish to remain after completing their training. The impact of policies serving to reduce the rate of influx of FMGs will be most apparent in these areas.

The most controversial impact of FMGs has been in those areas where they are said to be disproportionately represented in the domestic delivery system. These are, *first*, in hospitals where house staff are relied upon to provide patient care services; *second*, in public institutions whose demands for physician manpower have been accommodated by special licensure provisions. In these two sectors of the system – where FMGs are engaged directly in delivery of services – the economic impact of the FMG influx is most apparent. In a *third* area, however, the long-term influx of FMGs into the domestic medical education process has had a more pervasive, yet less apparent, influence. By filling a large portion of the vacancies in graduate medical education training positions, FMGs have alleviated pressure for an increase in the number of graduates from domestic medical schools.

The economic implications of the use of FMGs, as well as the economic implications of policies serving to restrict the availability of FMGs in the future, are directly related to the manner in which FMGs have been incorporated in the domestic system and the extent to which the structure of the system has been tailored to accommodate the expanding supply of FMGs. In many areas, the system has oriented itself around expectations of a continued and increasing influx of FMGs. Policies serving to reduce or cut off the influx will produce traumatic effects in the absence of complementary measures designed to ease the transition to any new form the system might take. Policies aimed at restricting the immigration of FMGs or at changing their basic characteristics or behavior patterns will quickly open up gaps where FMGs currently satisfy demands that are not met by the domestic educational and manpower structure. These will be most apparent in the three areas enumerated above.

In the *first* case, as the pool of undergraduate medical degree-holders seeking admission to graduate training programs has been augmented by the growing annual influx of FMGs, the capacity of the graduate medical education system has expanded. Interns and residents have been used to deliver patient care in these institutions and the manpower mix is different than it might have been otherwise. However, the impact on total resources allocation, output of services, and the quality of training and of patient services is not completely clear. Efforts to determine the effect of graduate training on hospital performance (and its cost) have been made, but the evidence is cursory and nonconclusive.

A similar situation exists with regard to our knowledge of the *second* main area of FMG utilization, namely, the impact of FMGs on health care delivery in public institutions (e.g., State mental hospitals). These are said to be dependent on a manpower pool of FMGs who are not fully qualified to practice medicine. The existence of a market served by FMGs not fully licensed to practice is documented by the fact that the demand of public institutions for physician manpower is often accommodated by special licensure provisions, but neither the extent of this FMG subgroup nor the impact it has had on resources allocation is known. Anecdotal evidence suggests that much health care delivery in the public sector is dependent on the marginally qualified physician who is willing to accommodate (at least temporarily) to working conditions which better qualified individuals are in a position to reject.

Lack of objective evidence as to the impact of FMGs on health care delivery precludes meaningful quantitative statements regarding their effect on resources allocation. It seems clear, however, that policies aimed at quantity restriction or quality improvement will be manifested in a decrease in the supply of manpower in the particular sectors of the health care delivery system noted above. Responses to a decrease in the supply of a particular type of health manpower can be expected to lead to attempts to substitute other types of inputs in the delivery process.

Opportunities to substitute the services of other health manpower for those of physicians in the two settings considered above may be severely limited by legal restrictions as well as by the availability of admissible alternative manpower occupations. Within these limitations, the range of substitution may be further restricted by reluctance to accept any deterioration of quality of care or service that may be perceived to result from substitution of alternative

health manpower for physicians. The primary economic impact of FMG policies in these settings depends for the most part on how the substitution question is resolved. It will also depend somewhat on how legal, technological, and economic conditions are affected by companion policies designed to minimize the disruptions caused by a sudden change in the labor supply.

Research into possibilities for substitution and reorganization of labor-intensive health care processes, in order to effect greater productivity of health manpower, is currently being conducted under the general rubric of "task delegation." The problem of adjustment to an FMG policy which reduces the availability of physician services is a task delegation problem in the strictest sense. This is so because, if output is to be maintained, such an adjustment will most likely be accomplished not by replacement with equivalent personnel but by delegation of tasks and responsibility to personnel at a lower level of the health manpower hierarchy. (Some attempts to assess the economic impact of FMGs have been based on estimates of their "replacement cost" – the cost which would have been incurred if all FMGs currently practicing in the United States had been produced domestically. Besides yielding entirely ficticious results, such techniques are misleading because they overlook the basic fact that the state of the system would bear no resemblance to what it is now, had it arisen in the absence of the historical influx of FMGs.) In any case, solution of adjustment problems will require both innovation in those methods of producing patient care services currently resulting from pocesses utilizing FMGs and changes in legal restrictions preventing task delegation.

As noted above, the long-term influx of FMGs can be seen to have had a pervasive effect in a *third* area – the capacity of domestic undergraduate medical education. Insofar as State funding is concerned, for example, each State must consider the impact of its expenditure on the number of physicians practicing in the State. Because of the substantial interstate migration of physicians between the periods of undergraduate and graduate training, and between the periods of graduate training and establishment of practice, the link between support of undergraduate medical training and the actual number of physicians practicing in a State is often tenuous at best. The fact that many States must produce several undergraduate physicians for every one who ultimately becomes a practicing physician in that State – and the fact that many other States are able to attract physicians almost independent of their investments in undergraduate medical education – tends to induce a general underinvestment in undergraduate medical education when viewed from the national or aggregate perspective.

The perverse result of the absence of coordinated decision-making among States regarding production of undergraduate physicians can be aggravated by the influx of FMGs, in that unplanned and unregulated physician supply from a source outside the domestic education system tends to confound even more the relation between a State's contribution to support of undergraduate medical education and the number of practicing physicians it is able to attract. States which experience losses of undergraduate physicians trained at least in part at public expense may perceive that attracting graduate medical students into the State will prove more effective and more efficient than producing their own. Thus, in many instances, emphasis might be shifted from support of undergraduate education to funding for graduate training programs from which direct benefits are realized in the form of patient services and which are a better investment from the viewpoint of attracting permanent physicians.

While the influx of FMGs has added to domestic physician supply, therefore, it has also aggravated one condition which has led to a chronic underinvestment in domestic undergraduate medical education capacity. Consequently, a policy which has the effect of reducing the rate of influx of FMGs will be imposed on a medical education system which has a significantly smaller productive capacity than it otherwise might have had. Such a policy, therefore, should be accompanied by corollary policies designed to minimize the disruptions in domestic undergraduate medical education, graduate medical education, and health care delivery in general.

Health Care Implications

In addition to the issue of the increasing number of FMGs in the U.S. health care system, some observers, especially those in the medical profession, have raised questions about the quality of care provided by a number of FMGs. Although there are always notable exceptions, many feel that physicians who do not speak English fluently and who have not received training that is oriented to U.S. health care problems and practices, are not as capable of providing health care services as physicians trained in the United States. In light of the cultural differences and communications difficulties encountered by those FMGs for whom English is a second language, widely varying performance might be anticipated.

At least one study evaluating approaches to the measurement of quality of care in terms of physician performance stresses the importance of the ability of

the physician and patient to communicate (9). This is particularly noted in the provision of psychiatric care, where the ability of the patient and the physician to communicate seems crucial.

FMGs who have been able to obtain only a temporary or limited license are known to be working in State mental hospitals in large numbers. A recent judicial decision (discussed in Chapter III of this report) may prohibit the use of these temporarily licensed FMGs in the future. Clearly, State mental hospitals and other chronic care hospitals, county hospitals, and tuberculosis sanitaria represent areas where an acute physician manpower shortage would exist today if FMGs could not be utilized.

Redistribution of physician manpower within and among the several States and among specialties and subspecialties is a current topic of great interest within the medical profession and government agencies at all levels. Similarly, utilization of physician assistants or extenders and other health personnel — either traditional (such as the psychiatric social worker) or newly developing (such as the child health associate) — is also the subject of intensive discussion and investigation. At the present time, implementation and evaluation of policies or programs related to these topics can proceed somewhat independent of the FMG issue, although, of course, continued reliance on FMGs in certain types of service settings impinges on redistribution and utilization planning. The more critical issue to address is the obverse situation: policies and action alternatives which would decrease the use of FMGs will have to be accompanied by policies and actions to redistribute physician manpower and to generate new patterns of health manpower organization. Otherwise, the maldistribution of physicians in certain specialty areas and practice settings would most probably be aggravated.

The FMG question is complex, and has no simple answers. Such answers as are devised to address all the implications of the FMG issue must take account of an intricate set of facts and suppositions about FMGs and their place in the U.S. health care system. The remainder of this report attempts to provide background information about those facts and suppositions, by describing the role of the FMG as a component of U.S. physician manpower supply and by discussing possible action alternatives that might be considered for policy formulation.

REFERENCES

1. Stevens, R. and Vermeulen, J., *Foreign Trained Physicians and American Medicine*. DHEW Publication No. (NIH) 73-325. Washington, D.C.: Government Printing Office, 1972. Sections of this report have drawn heavily on this monograph.
2. Gish, O., Medical Education and Medical Migration. *Proceedings of the Royal Society* 63:1191-1195, 1970.
3. "Training of National Health Personnel." Agenda Item 2.4. World Health Assembly, A25/VR/14. 25 May 1972.
4. "Report by the Director-General on the Answers of Member States Concerning the Anxiety Caused Them by the Migration of Talent." General Conference 17C/58. Paris: United Nationals Educational, Scientific, and Cultural Organization, October, 1972.
5. "Brain Drain from Five Developing Countries." New York: United Nations Institute for Training and Research, 1971.
6. Henderson, Gregory. "The Emigration of Highly Skilled Manpower from the Developing Countries." New York: United Nations Institute for Training and Research, 1970.
7. Bowers, John Z. and Lord Rosenheim. *Migration of Medical Manpower*. New York: The Josiah Macy, Jr., Foundation, 1971.
8. Medical Education in the United States. *Journal of the American Medical Association* 226:893-989, 1973.
9. Barro, A. R. Survey and Evaluation of Approaches to Physician Performance Measurement. *Journal of Medical Education* 48:1048-1093, Suppl. 1973.

CHAPTER

II

THE FOREIGN MEDICAL GRADUATE COMPONENT OF U.S. PHYSICIAN MANPOWER

BLANK PAGE BLANK PAGE

As of 1970, foreign medical graduates (FMGs) constituted just under one-fifth of all physicians in the United States (Table 1). They tended to be concentrated in hospital-based delivery of medical care; about one-third of all physicians in hospital-based practice (i.e., interns, residents, and full-time staff) were FMGs. At the end of 1970, some 28,400 of the 63,390 physicians from foreign schools (including Canada) were working full-time in U.S. hospitals. Of these, about 17,250 were interns and residents.

Most foreign-trained physicians now entering the United States do so early in their careers. Some of these physicians undoubtedly come with the intention of remaining; for most of these, a hospital post is one means of assimilation into the U.S. medical profession. Others intend to return home, and do so. But many have no clear-cut career intentions – or they change their intentions (generally to remaining in the United States) as they move through their graduate medical education. Thus, the impact of the internship and residency (and to a lesser degree other hospital positions) is a critical factor in the process of physician migration. For this reason, FMGs in graduate medical education will be singled out later in this report.

Table 1
FOREIGN MEDICAL GRADUATES IN COMPARISON WITH ALL PHYSICIANS IN THE UNITED STATES,
by major professional activity: 1970

Major professional activity	Foreign medical graduates [1]	All physicians	Foreign medical graduates as percent of all physicians
Total physicians	63,391	334,028	19.0
Patient care	52,913	278,535	19.0
Office-based practice	24,490	192,439	12.7
Hospital-based practice	28,423	86,096	33.0
Interns & residents	17,259	51,228	34.9
Full-time staff	11,164	34,868	32.0
Medical teaching	1,142	5,588	20.4
Administration ..	1,491	12,158	12.3
Research	3,608	11,929	30.2
Other	527	2,635	20.0
Inactive, unknown	3,710	23,183	16.0

1 Including Canadians.
Source: Reference 1.

INTERNATIONAL EDUCATIONAL EXCHANGE AND IMMIGRATION

Nonimmigrant Visas and Exchange Visitors

Foreign-born FMGs are admitted to the United States both as immigrants (permanent residents) and as nonimmigrants (primarily exchange visitors). Exchange visitors enter under a special visa category, the 'J' visa, authorized by the U.S. Information and Educational Exchange (Smith-Mundt) Act of 1948 (amended several times but still in force today). Although intended initially for university-level students, this exchange visitor program has become a significant vehicle for the entry of physicians into graduate educational programs (i.e., internships and residencies). In the 12 years ending June 1973, some 55,360 physicians entered this country on exchange visitor (J) visas (Table 2), the great majority for graduate medical education. Only a comparatively small number (about 11 percent in FY 1973, for example) enter in some other nonimmigrant category, such as "industrial trainees" or "workers of distinguished merit and ability." Since 1967, about 47 percent of all physicians entering the United States were immigrants, and 49 percent were exchange visitors. This has begun to change, however. In FY 1971-73, of all physicians entering the country, more physicians were admitted as immigrants (58 percent) than as exchange visitors (38 percent).

The process of remaining in the United States as a permanent resident has been facilitated by the recent change in the requirement that all physicians holding 'J' visas be absent from the United States for two years after their studies have ended before they can reenter the U.S. In 1970, legislation (P.L. 91-225) was passed to eliminate this requirement for persons coming to the

United States on private funds, as long as they were not from countries where their special skills were in short supply (2-4). If the exchange visitor was sponsored by funds from the United States or a foreign government, or if the Secretary of State determines that his services are clearly required at home, that person must return to his home country for the two-year period (unless he is granted a special waiver on the recommendation of the Secretary of State to the Immigration and Naturalization Service). The great majority of physicians in the United States as exchange visitors are privately funded, however, and this new legislation (P.L. 91-225) which represents the most recent amendment to the Smith-Mundt Act, is in effect a relaxation of previous restrictions on permanent immigration of physicians.

Countries determined by the U.S. Secretary of State to require the services of exchange visitor physicians are placed on the "Skills List," mandated by P.L. 91-225 (Figure 1). Published in the Federal Registry of 25 April 1972, it went into effect 25 May 1972. (It should be noted that countries requiring the services of other health manpower personnel, e.g., nurses, and not including physicians also can be placed on the Skills List.)

Table 2
FOREIGN PHYSICIANS AND SURGEONS ADMITTED TO THE UNITED STATES IN COMPARISON WITH NUMBER OF U.S. MEDICAL GRADUATES: 1962-73

Fiscal year	U.S. medical graduates	Foreign physicians [1]			
		Total	Immigrants	Nonimmigrants	
				Exchange visitors	Other
Total	97,809	101,066	43,089	55,360	2,617
1962...	7,168	5,767	1,797	3,970	N.A.
1963...	7,264	6,730	2,093	4,637	N.A.
1964...	7,336	6,767	2,249	4,518	N.A.
1965...	7,409	6,172	2,012	4,160	N.A.
1966...	7,574	6,922	2,552	4,370	N.A.
1967...	7,743	8,897	3,326	5,204	367
1968...	7,973	9,125	3,128	5,701	296
1969...	8,059	7,515	2,756	4,460	299
1970...	8,367	8,523	3,158	5,008	357
1971...	8,974	10,947	5,756	4,784	407
1972...	9,551	11,416	7,143	3,935	338
1973...	10,391	12,285	7,119	4,613	553

[1] Including Canadians.

Source: Reference 22. Unpublished data from the U.S. Department of Justice, Immigration and Naturalization Service.

Figure 1
EXCHANGE – VISITOR SKILLS LIST

Medical Skills list in Part I of the full Exchange-Visitor Skills List are as follows:

1F. Hospital Administration
2A. General Practice of Medicine
2B. Recognized Medical Specializations (including, but not limited to: Anesthesiology, Dermatology, Internal Medicine, Neurological Surgery, Obstetrics and Gynecology, Ophthalmology, Orthopedic Surgery, Otolaryngology, Pathology, Pediatrics, Physical Medicine and Rehabilitation, Plastic Surgery, Preventive Medicine, Proctology, Psychiatry and Neurology, Radiology, Surgery, Thoracic Surgery, and Urology.)
2C. Nursing (including, but not limited to: Registered nurses, Practical nurses, Physician's receptionists, and Medical records clerks.)
2D. Medical Technology
2E. Dentistry
2F. Dental Technology
2G. Optometry
2H. Chiropractic and Osteopathy
2I. All Therapies, Prosthetics, and Healing (except Medicine, Nursing, Dentistry, Chiropractic, Osteopathy, and Optometry)
2U. Teaching in Medical Schools (including but not limited to, lecturers)
4B. Life Sciences (including but not limited to Pharmacy and Biology)

(Continued)

Figure 1 (Continued)
EXCHANGE – VISITOR SKILLS LIST

The fields of specialized medical knowledge or skill clearly required by each country are as follows:

Country	Medical Skills											
	1F	2A	2B	2C	2D	2E	2F	2G	2H	2I	2U	4B
Afghanistan	X	X	X	X	X	X	X	X		X	X	X
Algeria	X	X	X	X	X	X	X	X	X	X	X	X
Argentina	X											X
Bahrain	X	X	X	X	X	X	X	X	X	X		X
Bangladesh	X	X	X	X	X	X	X	X			X	X
Bolivia	X	X	X	X	X	X	X	X	X	X	X	X
Botswana	X	X	X	X	X	X	X	X	X	X	X	X
Brazil	X	X	X	X	X	X	X	X	X	X	X	X
Bulgaria	X	X	X	X	X	X	X	X	X	X	X	X
Burundi	X	X	X	X	X	X	X	X	X	X	X	X
Cameroon	X	X	X	X	X	X	X	X		X	X	X
Central African Republic	X	X	X	X	X	X	X	X	X	X	X	X
Ceylon												
Chad	X	X	X	X	X	X	X	X	X	X	X	X
Chile	X		X	X		X				X	X	X
Colombia			X	X	X	X	X					
Costa Rica	X	X	X	X	X	X	X	X	X	X	X	X
Cyprus	X	X	X	X	X	X	X	X	X	X		X
Czechoslovakia	X	X	X	X	X	X	X	X		X	X	X
Dahomey	X	X	X	X	X	X	X	X	X	X	X	X
Dominican Republic	X	X	X	X	X	X	X	X	X	X	X	X
Ecuador					X		X					
El Salvador	X	X	X	X	X	X	X	X		X	X	
Equatorial Guinea	X	X	X	X	X	X	X	X	X	X	X	X
Fiji				X	X	X	X	X	X	X	X	X
Gabon	X	X	X	X	X	X	X	X	X	X	X	X
Gambia	X	X	X	X	X	X	X	X	X	X	X	X
Ghana	X	X	X	X	X	X	X	X	X	X	X	X
Guatemala		X	X	X	X	X	X			X	X	X
Guinea	X	X	X	X	X	X	X	X	X	X	X	X
Guyana	X	X	X	X	X	X	X	X	X	X		X
Honduras	X	X	X	X	X	X	X	X	X	X	X	X
Hungary	X	X	X	X	X	X	X	X	X	X	X	X
India	X	X	X	X	X	X	X	X			X	
Indonesia	X	X	X	X	X	X	X	X	X	X	X	X
Iran	X	X	X	X	X	X	X	X	X	X	X	X
Ivory Coast	X	X	X	X	X	X	X	X		X	X	X
Jamaica	X	X	X	X	X	X	X	X			X	X
Jordan	X	X	X	X	X	X	X	X	X	X		X
Kenya	X	X	X	X	X	X	X	X	X	X	X	X
Khmer Republic	X	X	X	X	X	X	X	X			X	X
Korea		X		X	X							
Kuwait	X	X	X	X	X	X	X	X	X	X	X	X
Laos	X	X	X	X	X	X	X	X	X	X	X	X
Lebanon	X			X		X	X				X	
Liberia	X	X	X	X	X	X	X	X	X	X	X	X
Libya	X	X	X	X	X	X	X	X	X	X	X	X
Malawi	X	X	X	X	X	X	X	X	X	X	X	X
Malaysia	X	X	X	X	X	X	X	X	X	X	X	X
Mali	X	X	X	X	X	X	X	X	X	X	X	X
Malta	X		X	X	X	X	X				X	X
Mauritania	X	X	X	X	X	X	X	X	X	X		X
Mauritius	X	X	X	X	X	X	X	X	X	X	X	X

(Continued)

Figure 1 (Continued)
EXCHANGE–VISITOR SKILLS LIST

Country	Medical Skills											
	1F	2A	2B	2C	2D	2E	2F	2G	2H	2I	2U	4B
Morocco	X	X	X	X	X	X	X	X		X	X	X
Nepal	X	X	X	X	X	X	X	X	X	X	X	X
Nicaragua	X		X	X	X		X		X		X	X
Niger	X	X	X	X	X	X	X	X	X	X	X	X
Nigeria	X	X	X	X	X	X	X	X	X	X	X	X
Oman	X	X	X	X	X	X	X	X	X	X		X
Pakistan	X	X	X	X	X	X	X	X			X	X
Panama	X	X	X	X		X					X	
Paraguay	X		X	X	X		X			X		
Peru	X	X	X	X	X	X	X	X	X	X	X	X
Philippines		X	X[1]	X[2]							X	
Poland	X	X	X	X	X	X	X	X	X	X	X	X
Qatar	X	X	X	X	X	X	X	X	X	X		X
Romania	X	X	X	X	X	X	X	X	X	X	X	X
Rwanda	X	X	X	X	X	X	X	X	X	X	X	X
Saudi Arabia	X	X	X	X	X	X	X	X	X	X	X	X
Senegal	X	X	X	X	X	X	X	X	X	X	X	X
Sierra Leone	X	X	X	X	X	X	X	X	X	X		X
Singapore	X	X	X					X		X	X	
Somalia	X	X	X	X	X	X	X	X	X	X	X	X
South Africa		X	X	X								
Sudan	X	X	X	X	X	X	X	X	X	X	X	X
Swaziland	X	X	X	X	X	X	X	X	X	X		X
Switzerland				X	X							X
Tanzania	X	X	X	X	X	X	X	X	X	X	X	X
Thailand	X	X	X	X	X	X	X	X	X	X	X	X
Togo	X	X	X	X	X	X	X	X	X	X	X	X
Tonga	X	X	X	X	X	X	X	X	X	X	X	X
Trinidad and Tobago	X	X	X	X	X	X	X			X		X
Tunisia	X	X	X	X	X	X	X	X	X	X	X	X
Turkey	X	X	X	X	X	X	X	X	X	X	X	X
United Arab Emirates	X	X	X	X	X	X	X	X	X	X		X
Upper Volta	X	X	X	X	X	X	X	X	X	X	X	X
Uruguay	X											
Venezuela	X	X	X	X	X	X	X				X	X
Vietnam	X	X	X	X	X	X	X	X	X	X	X	X
Zaire	X	X		X	X	X	X	X	X	X	X	X
Zambia	X	X	X	X	X	X	X	X	X	X	X	X

[1] Including only Pathology, Psychiatry and Neurology, Orthopedic Surgery, Thoracic Surgery, Surgery, Urology, and Internal Medicine.

[2] Including only registered nurses in a recognized nursing specialty.

Source: Department of State. Exchange-Visitor Skills List. Federal Register 37 (No. 80:) 8099-8117, April 25, 1972.

In 1965, only about 1 of every 30 immigrant visas granted to physicians was to someone who was already an exchange visitor. By 1970, partly as the result of previous changes in legislation, the figure was 1 of every 6. In 1972, more than 1 of every 2 immigrant visas granted to physicians was to an exchange visitor still in the U.S. It is thought that this reflects a backlog of exchange visitors who entered in FY 1970 or before and who were now able to change their visa status without leaving the country; only 13 percent of those changing from exchange visitor to immigrant status in 1972 had entered the country in 1971 or 1972.

One implication of this is that two avenues of entry into the U.S. can be utilized by physicians seeking permanent residence here. One is the "direct" immigrant route, in which the physician is admitted as a permanent resident when he enters the country initially. He may come in this category either for employment or for educational purposes. The second is the 'J' visa route, in which the physician enters as an exchange visitor (presumably only for educational purposes) and then may convert to immigrant status. It should be noted that, because of the ease of converting without the necessity of leaving the country, the total number of physicians entering this country in any given year will be overcounted by that number who enter and convert in the same year. For example, about 43 physicians counted as exchange visitors entering in 1972 are also counted as immigrants for 1972 by the Immigration and Naturalization Service (INS). This problem of overcounting is further compounded when one tries to estimate the total number of physicians entering the country over some extended period of time, because those admitted as immigrants in 1971 and 1972 included a substantial number of exchange visitors who had been in the country continuously for one or more years. Furthermore, for virtually all years since the inception of the Smith-Mundt Act, the group of physicians admitted as immigrants includes exchange visitors who left the country and then returned. These problems with quantifying the basic inflow of foreign physicians give some indication of the difficulties inherent in estimating the number and characteristics of FMGs in U.S. health care delivery and medical education.

Immigrant Visas

There are other complexities in the immigration process in addition to those presented by the nonimmigrant and immigrant categories, just discussed, particularly with regard to the laws affecting FMGs who enter as permanent residents. The Immigration Act of October 3, 1965 (P.L. 89-236) established two principal categories of immigrant visas, those subject to numerical limitations and those that are not subject to such limitations (5). Immigrant visas are numerically limited according to the hemisphere in which the alien was born. The annual visa limit for natives of the Eastern Hemisphere is 170,000 and for natives of the Western Hemisphere, 120,000. Close relatives of United States citizens (spouses, children, or parents) are exempt from these limitations regardless of hemisphere of birth.

The annual numerical limit for natives of the Eastern Hemisphere is 170,000 visas, assigned on the basis of seven preference categories. Four of the seven categories (first, second, fourth, and fifth) provide for the reunion of families of U.S. citizens and resident aliens. The seventh preference is allocated to refugees. The third preference category provides 17,000 visas for qualified immigrants who are members of the professions or who, because of exceptional ability in the sciences or the arts, could substantially benefit the U.S. national economy, cultural interests, or welfare. The sixth preference provides 17,000 visas for skilled or unskilled workers in short supply in the United States. The numerical limitation for these two preference categories includes the potential worker and his family members. The individual country ceilings for each nation in the Eastern Hemisphere is 20,000.

The visas for natives of the Western Hemisphere are allocated on a first-come, first-served basis, and applicants continue to exceed the number of available visas. As of June 1973, qualified applicants from the Western Hemisphere countries faced a waiting period of 22 months.

The Judiciary Committee of the U.S. House of Representatives, acting on the advice of the Subcommittee on Immigration and Nationality, in 1973 proposed amendments (HR 981) to the immigration laws which would bring the regulations for the Western Hemisphere more into line with those for the Eastern Hemisphere. In particular, it was agreed that the presently existing preference system for immigration from the Eastern Hemisphere be adopted for the Western Hemisphere. Although the total number of visas available for the latter would remain at 120,000, the maximum number of visas per country would be set at 20,000. The third and sixth preference categories, which are subject to labor certification, would each have 12,000 visas. One section of the proposed bill provides that refugees from Cuba who want to change their status to that of permanent resident may do so without a visa number, meaning that they would not count against the hemisphere ceiling of 120,000, as they presently do.

Labor Certification

Aliens who seek to immigrate to the United States on any basis other than a family relationship to U.S. citizens or lawful permanent residents, or as refugees, must obtain labor certification as provided in Section 212(a)(14) of the Immigration and Naturalization Act

of October 3, 1965 (6). This requirement extends to all "special immigrants" (i.e., those born in any independent foreign country of the Western Hemisphere or Canal Zone), all "non-preference" immigrants from the Eastern Hemisphere, and third and sixth occupational preference immigrants.These certifications,issued by the Secretary of Labor, reflect the dual concepts that there is a nationwide shortage of qualified workers in the United States and that wages and working conditions of U.S. workers similarly employed would not be adversely affected. The Department of Labor still classifies physicians in "Schedule A," which means that not enough workers in the United States as a whole are able, willing, qualified, and presently available for employment as physicians. On these grounds, the labor certification is granted to the FMG applicant after review of his qualifications. Successful completion of the ECFMG examination is used as a criterion of evaluating qualifications prior to issuance of labor certifications, if the applicant cannot furnish evidence of having met all requirements for licensure or for admittance to the licensure examination in the State of the alien's intended employment. The requirement to obtain labor certification extended to about three-quarters of the FMGs admitted as immigrants in 1972 and 1973.

If it were determined by the Secretary of Labor that physicians are no longer in short supply on a nationwide basis, but only in specific geographic areas, then physicians would be removed from Schedule A. In this instance, each alien physician's application would be subject to individual review prior to his being admitted to the U.S. Provision of a labor certification would no longer be automatic upon meeting qualifications, but would be determined by the concentration of physicians in the geographical location designated by the alien as his intended place of residence. If that location has been designated a shortage area (for physicians), the Labor Department is responsible for assuring that there are no unemployed U.S. citizen physicians willing to relocate and accept employment in that location before it issues labor certification to the alien physicians.

EXAMINATIONS

The complexities of the foreign medical graduate situation in the United States cannot be understood without some appreciation of the role of two examinations: ECFMG (Educational Council for Foreign Medical Graduates) and FLEX (Federation Licensing Examination). The National Board of Medical Examiners also plays an indirect role in developing screening examinations for FMGs.

Educational Council for Foreign Medical Graduates (ECFMG)

In 1956, a Cooperating Committee on Graduates of Foreign Medical Schools (including members of the American Medical Association, the Association of American Medical Colleges, the American Hospital Association, and the Federation of State Medical Boards) endorsed the concept of an examination program to identify those FMGs (both U.S. and foreign-born) who are most likely to benefit from graduate medical training in the United States. The Educational Council for Foreign Medical Graduates (ECFMG) was set up to organize and administer a certification program which included a medical and English examination and a review of credentials; it began operation in October 1957 (7).

The medical examination questions are drawn from the pool of questions used in the tests given by the National Board of Medical Examiners. The standard for passing is set such that an expected 2 percent of U.S. medical students would not achieve the cut-off score of 75. FMGs have the option of retaking the examination until they achieve this passing score; more than 40 percent of the foreign physicians sitting for each examination are repeaters.

The ECFMG has become a major professional organization, giving examinations twice a year (usually February and September) in 42 centers in the United States, 7 in Canada, and over 125 in other countries (8). By the end of 1973, about 178,325 foreign-trained physicians had sat for the examination, and over 119,800 (or 67 percent) ultimately passed. In 1972 alone, 37,000 foreign-trained medical graduates took the examination, slightly more than one-half for the first time. Over the years, the percentage of candidates passing has varied from a low of 31 (in 1971) to a high of 46 (in 1967). The overall pass rate indicates that the examination does serve as a screening device, although there have been recommendations that it be made even more stringent (9).

Once the candidate passes the test, produces the required professional credentials, and clears his financial account, he is eligible to receive the ECFMG standard certificate. He can be awarded an interim certificate pending clearance of his financial account.

The ECFMG certification process is necessary in two different (although related) areas, namely, State licensure and appointment to hospital training programs. With regard to the former, ECFMG certification is listed by almost all of the 55 State and Territory licensure boards as part of the requirements for permanent licensure for physicians trained outside the United States or Canada (8, p. 55), although it can be waived in individual cases by all but 13 boards (8, p. 12). With regard to the latter, hospitals wishing to retain approved internship or residency programs and to appoint foreign-trained physicians to those programs must appoint only those with ECFMG certification or those with full and unrestricted State license to practice (10, p. 154). (The latter requirement is relaxed somewhat for U.S. citizens.) Similarly, accreditation of hospitals by the Joint Commission on Accreditation of Hospitals is dependent to some degree on hospitals employing only those foreign medical graduates with valid State licenses or ECFMG certification.

An "agreement of combination" was signed in November 1973 mandating the merger of the ECFMG and the Commission on Foreign Medical Graduates; the latter had been formed originally as an outgrowth of one recommendation of the 1967 National Advisory Commission on Health Manpower. The functions of the two organizations will continue, and the name will become the Educational Commission on Foreign Medical Graduates. The merger is expected to become effective by summer of 1974.

Federation Licensing Examination (FLEX)

One problem facing FMGs, in particular those FMGs desiring to remain as permanent residents and practice medicine in the U.S., has been the wide variation among States in licensing requirements. A desire to bring some degree of standardization into State requirements led to the development in 1968 of a new examination, the Federation Licensure Examination (FLEX). Like the ECFMG examination, it is based on the current pool of questions from the National Board of Medical Examiners; the FLEX questions are chosen to be of middle range in difficulty with emphasis on their practical value and clinical applicability (11, p. 18). FLEX is given in June and December of each year, over a three-day period. It is open to graduates of U.S. medical schools and to FMGs and is designed for physicians who are in house staff positions or already in practice. By December 1973, all States (except Florida and Texas), the District of Columbia, Puerto Rico, and the Province of Saskatchewan, will use FLEX as their official board examination, and thus it will become the standard test for licensing for physicians who do not or cannot take the National Board examination. Legislation is required in the other two States and then FLEX will become universal. The total number of State licensure examinations administered in 1972 was over 18,500, the great majority being FLEX. Because of other requirements for licensure heretofore incumbent upon FMGs but not USMGs, however, it is not clear whether States will accept FMGs taking FLEX on the same terms as USMGs taking FLEX.

Some coordination between the ECFMG and FLEX is beginning to take hold. For example, the ECFMG will now accept for certification, any FMG who has passed FLEX with a grade of 75 or better and does not require him to take the ECFMG's own examination.

National Board of Medical Examiners

The National Board of Medical Examiners, which has been in existence for nearly 60 years, has as one major purpose the preparation and administration of qualifying examinations "of such high quality that legal agencies governing the practice of medicine within each State may, at their discretion, grant successful candidates a license without further examination" (11, p. 28). The qualifying examinations are given in three parts: Part I covers the basic sciences and Part II the clinical sciences. Part III is centered on clinical competence – i.e., interpretation of clinical data and management of problems. Any student or graduate from an approved medical school in the United States or Canada is eligible to register for the first two parts of the examinations. A candidate is eligible for the third part of the examination only if he has successfully completed the first two parts, received his M.D. degree, and served at least six months in an approved internship or residency.

The National Board also participates in a variety of other examination programs, including such activities as providing examinations for use by individual medical schools or departments and making available testing material for FLEX and ECFMG. As part of a continuing process of evaluating its role in licensure and specialty certification, the National Board has given careful consideration to the evaluation of foreign medical graduates. The National Board believes it should "pro-

mote the elimination of dual standards that now exist for USMGs and FMGs for admission to graduate medical education" (12, p. 67). A "Qualifying A" examination is to be devised "to evaluate performance characteristics requisite for providing patient care in a supervised setting." "Successful performance on Qualifying A" (among other things) would qualify a candidate for a "permit to practice in a supervised setting," and this permit would be required of all graduates (from both U.S. and foreign medical schools) for entrance into residency training. Furthermore, the Goals and Priorities Committee of the National Board has agreed that an evaluation procedure is needed which will better assess English language capability and potential adjustment to the U.S. medical education and health care delivery system. To this end, the Committee recommended that a new evaluation instrument be designed, and successful performance on it would be a prerequisite for the Qualifying A examination for foreign-born FMGs.

THE DATA BASE

The comprehensiveness and accuracy of data on FMGs has still not yet reached a stage where subpopulations of FMGs can be reliably compared either with each other or with United States medical graduates (USMGs). Because of these limitations in the data presently available, FMGs are discussed in this paper generally on an aggregate basis. The FMG population is described in terms of a number of characteristics, such as country of origin, demographic characteristics, and major professional activity. A partial analysis of the relative performance of FMGs and USMGs is presented in terms of licensure, specialty board certification, and other indirect measures.

The reader is cautioned against drawing too firm conclusions about the characteristics or performance of FMGs, especially in comparison with USMGs. The deficiencies and liabilities of the data base, particularly in trying to look at FMGs over a long time, cannot be overstated.

Three major limitations of the FMG data base must be kept in mind. First is the problem of the enumeration of FMGs entering the U.S. In estimating the magnitude of the FMG flow into this country and the net FMG components of U.S. physician manpower, there are several obstacles to be surmounted. For example, with regard to the entry of FMGs into the United States over a several year period, the problem of double-counting must be recognized. That is, differentiations are not always made between those physicians who enter the country in one visa category and subsequently change to another at some later date, so they are counted twice and thereby inflate the total numbers. It must also be recalled that the exit of FMGs is not recorded in any systematic way which would allow the measurement of the annual net flow of immigrant or nonimmigrant physicians.

Second is the problem of an unknown but presumably sizeable number of FMGs who are functioning in the United States in some medical capacity, many in State mental or other long-term institutions, but who are "unknown" to any of the professional or regulatory bodies currently involved with FMGs. Thus, the information contained in this report is biased to the extent that it includes only those FMGs known to the AMA, the ECFMG, or the INS; it will readily be seen that these "known" FMGs comprise a segment of the total FMG population which has been more formally and visibly integrated into the U.S. health care system than the "unknown" segment.

Third, the data presented in this report on "known" FMGs are not always statistically comparable, because this "known" group of identified (or identifiable) FMGs is made up of different individuals, depending on the source of the information. That is to say, the INS data on immigration includes more physicians than are known to either the AMA or the ECFMG, and there are FMGs known to the ECFMG who are not known to the AMA (and vice versa). Appendix A, which depicts FMG immigration, education, and career pathways, illustrates more graphically some of the difficulties with the data base. A major effort is currently underway at Harvard University, under contract with the Division of Manpower Intelligence, Bureau of Health Resources Development, and in cooperation with the appropriate public and private agencies, to match as many FMGs as possible from these three sources and also to estimate the size of the "unknown" group.

The remainder of this chapter of the report will focus on demographic and professional characteristics of FMGs. That part of the FMG population serving in internships and residencies will be examined in somewhat more detail. In much of what follows, data are

given on USMGs for background and perspective, but it should be reiterated that statistical comparisons must not be made between FMGs and USMGs because of the inadequacies of the data base on the former group and because of the impossibility (at the present time) of controlling for certain key variables (especially age and sex). For example, differences with regard to specialty distribution or geographic distribution (especially rural/-urban) may be explained, at least in part, by differences in the age and sex distribution. The FMG group, it will be seen, is younger and has more women than the USMG group, which might help to account for the urban concentration of FMGs. Were they compared with a group of USMGs matched for age and sex, for example, it might appear that the FMGs were no more overrepresented in cities than the USMGs.

One major factor should be borne in mind with regard to the following discussions: unless otherwise noted, FMGs are considered to *include* Canadians on the grounds that the domestic source of physicians should be differentiated from any foreign source. Furthermore, many "Canadians" are actually natives of other countries and Canada may be only their last permanent residence. In some cases, data are available only for the U.S. and Canada combined versus other foreign countries (as, for example, in information from the AMA); where this occurs, it is so indicated in the text or the appropriate table.

FMGs AS A COMPONENT OF U.S. PHYSICIAN SUPPLY

Countries of Origin

When immigration figures are reported in terms of country or region of origin, they often refer to the immigrants' last permanent residence. At least two alternative interpretations are possible, however, especially where physicians are concerned: country of birth or country of medical education. Where country of origin is used in the analyses or tables based on the AMA report published in 1971 (1), it refers to country of graduation (medical education), and the countries are based on current political boundaries. In the discussion below, the immigration data are taken from the Immigration and Naturalization Service statistics in which country of origin is that of last permanent residence, unless otherwise indicated. Thus, the two major sources of data do not in general ascribe the same meaning to country of origin. Any given individual born in one country, educated in a second, and immigrating to the United States from a third might well appear under three different country listings, depending upon who was doing the enumeration – a not too unlikely example would be that of an Indian educated in England who entered the United States from Canada. Attention is drawn to these differences to highlight the fact that the reader should note carefully the meaning of country of origin in comparing figures on countries or regions from which foreign medical graduates are currently coming to the United States.

Physicians Admitted as Immigrants

The past few years have witnessed a rapid increase in the number of physician immigrants (especially since 1965) and a dramatic rise in the proportion of physicians immigrating from the Far East and South East Asia. Physicians on immigrant visas numbered about 2,000 a year between 1957 and 1965 (Table 3). In the latter year, about 1,000 were from Europe or Canada, and a mere 200 from all countries in Asia. Between 1965 and 1972, the annual number of physicians granted immigrant visas more than tripled, from 2,012 to 7,143. Within this total, European, Canadian, and other (African and Oceanian) immigration increased only a little and South American immigration dropped; immigration from Asian countries accounted for almost all the increase.

Table 4 and Appendix Table 1 give breakdowns by region and by country of last permanent residence of physicians admitted as immigrants for three recent years; the rise in physician immigration from India, Korea, Pakistan, Thailand, and Taiwan is clear. The immigration picture for 1972 has been distorted somewhat, however, because 1972 was the first complete fiscal year in which exchange visitors (who constitute by far the largest proportion of nonimmigrant physicians) were able to convert to immigrant status under P.L. 91-225.

Table 5 and Appendix Table 2 give somewhat differing views of 1972 physician immigration. Table 5 shows that in terms of region of birth, Asia is contributing more physicians to the total immigrant group than by region of last permanent residence (5,558, or 78 percent of the total, instead of 4,996, or 70 percent). Europe clearly is contributing fewer physicians and the same is also true of the Americas (9

percent by country of birth versus 13 percent by country of last permanent residence). Appendix Table 2 shows the substantial international migration of physicians among all the countries of the world. Of the 7,143 physicians admitted to the U.S. as immigrants in 1972, only 5,603 (or 78 percent) had the same country of birth and country of last permanent residence.

Table 3
FOREIGN PHYSICIANS AND SURGEONS ADMITTED TO THE UNITED STATES AS IMMIGRANTS, BY COUNTRY OR REGION OF LAST PERMANENT RESIDENCE: 1953-72

Fiscal year	Total	United Kingdom	Other Europe	Canada	Mexico	Cuba	South America	Asia	Other
1953 ...	845	66	299	130	40	58	0	0	252
1954 ...	1,040	66	373	116	60	90	0	0	335
1955 ...	1,046	62	417	128	63	92	0	0	284
1956 ...	1,388	76	513	151	93	112	0	0	443
1957 ...	1,990	142	729	256	95	199	228	155	186
1958 ...	1,934	189	592	218	57	86	285	316	191
1959 ...	1,630	147	579	210	44	77	227	207	139
1960 ...	1,574	125	425	245	66	94	256	244	119
1961 ...	1,683	140	413	287	64	94	208	269	208
1962 ...	1,797	119	383	280	70	120	298	265	262
1963 ...	2,093	154	421	467	97	156	327	260	211
1964 ...	2,249	165	458	440	77	229	454	204	222
1965 ...	2,012	147	421	380	110	201	348	205	200
1966 ...	2,552	187	483	393	119	150	355	588	277
1967 ...	3,326	206	596	449	86	162	358	1,175	294
1968 ...	3,128	185	481	314	55	215	345	1,277	256
1969 ...	2,756	140	426	236	32	54	172	1,448	248
1970 ...	3,158	192	436	240	29	52	161	1,744	304
1971 ...	5,756	268	461	474	28	95	269	3,836	325
1972 ...	7,143	364	547	439	54	55	263	4,996	425

Source: Immigration and Naturalization Service and National Science Foundation.

Table 4
FOREIGN PHYSICIANS AND SURGEONS ADMITTED AS IMMIGRANTS, BY REGION OF LAST PERMANENT RESIDENCE: 1966, 1969, and 1972

Region of last permanent residence	Fiscal year 1966		1969		1972	
	Number	Percent	Number	Percent	Number	Percent
Total .	2,552	99	2,756	100	7,143	100
Europe ..	667	26	579	21	911	13
Americas .	1,210	47	587	21	959	13
Asia	588	23	1,435	52	4,996	70
Africa ...	60	2	137	5	222	3
Oceania ..	24	1	18	1	55	1
Unknown	3	–	0	–	0	–

Source: Appendix Table 1.

Table 5
FOREIGN PHYSICIANS AND SURGEONS ADMITTED AS IMMIGRANTS, BY REGION OF BIRTH AND BY REGION OF LAST PERMANENT RESIDENCE: 1972

Region	Region of birth		Region of last permanent residence	
	Number	Percent	Number	Percent
Total ..	7,143	101	7,143	100
Europe ..	654	9	911	13
Americas .	626	9	959	13
Asia	5,558	78	4,996	70
Africa ...	259	4	222	3
Oceania ..	46	1	55	1

Source: Appendix Table 2.

The country-by-country breakdown (Appendix Table 2) substantiates the notion that certain countries act as way-stations for physicians immigrating to the United States from some third country; this is particularly true of the United Kingdom, Canada, and Taiwan, and possibly Libya, Hong Kong, and Israel. For example, 32 percent of those coming from Taiwan were born in some other Asian country, primarily Mainland China (13). Some 55 percent (243 of 439) of immigrant FMGs reporting Canada as the last permanent residence were from Asia, with 92 (21 percent) from India alone. Another 14 percent are from Europe. Similarly, 69 percent (251 of 364) of those from the United Kingdom listed their country of birth as an Asian country, again notably India (179, or 49 percent). Fourteen percent were born in another European country, and 12 percent in Africa (primarily Egypt). Thus, for a substantial fraction, the entrance into the U.S. constituted at least a second migratory step; for many, it was undoubtedly a third or fourth step.

Table 6 gives the number of physicians admitted as nonimmigrants who changed to immigrant status between 1966 and 1972. The steady rise in this category is clearly evident, with a major jump in 1971 and again in 1972 as a result of changes in immigration legislation noted earlier. Table 7 shows the proportion represented by this group of the total number of physicians admitted as immigrants for those years, highlighting the slight drop in 1968 and 1969 and the dramatic rise in 1971 and 1972.

Table 6
FOREIGN PHYSICIANS AND SURGEONS WHO CHANGED FROM NONIMMIGRANT TO IMMIGRANT STATUS, BY REGION OF BIRTH: 1966-72

Region	Fiscal year						
	1966	1967	1968	1969	1970	1971	1972
Total	474	841	652	576	890	2,902	4,389
Europe	110	153	116	83	126	215	326
Americas [1]	28	86	76	15	43	75	47
Asia	295	567	436	461	679	2,529	3,861
Africa	30	27	20	15	39	73	128
Oceania	11	8	4	2	3	10	27

1 Virtually all came from Cuba as refugees. Nonimmigrants from the Western Hemisphere are not allowed to change status while residing in the United States.

Source: Immigration and Naturalization Service and National Science Foundation data, Table D4, fiscal years 1966-72.

Table 7
NUMBER AND PERCENT OF FOREIGN PHYSICIANS AND SURGEONS ADMITTED AS IMMIGRANTS WHO CHANGED FROM NONIMMIGRANT STATUS: 1966-72

Fiscal year	Total foreign physicians admitted as immigrants	Changed Status	
		Number	Percent
1966	2,522	474	19
1967	3,326	841	25
1968	3,128	652	21
1969	2,756	576	21
1970	3,158	890	28
1971	5,756	2,902	50
1972	7,143	4,389	61

Source: Tables 3 and 6.

Table 8 shows the number and percent of physicians admitted as permanent residents in 1972 by region of birth and visa status, indicating that only 39 percent of immigrants were in fact admitted as permanent residents directly from another country. The other 61 percent had changed from nonimmigrant to immigrant status while residing in the United States. This option (changing status while still living in the U.S.) is not open to citizens of countries in the Western Hemisphere (except for Cuban refugees), which explains the low number from the Americas who changed status. Among the "direct" immigrant group, 62 percent were from Asia (1,697 of 2,754); the other percentages were as follows: Americas, 21 percent; Europe, 12 percent;

Table 8
FOREIGN PHYSICIANS AND SURGEONS ADMITTED AS IMMIGRANTS, BY REGION OF BIRTH AND VISA STATUS: 1972

Region	Total	Changed status [1]		Direct immigrants	
		Number	Percent	Number	Percent
Total	7,143	4,389	61	2,754	39
Europe	654	326	50	328	50
Americas	626	47	8	579	92
Asia	5,558	3,861	69	1,697	31
Africa	259	128	49	131	51
Oceania	46	27	59	19	41

1 Changed from nonimmigrant to immigrant status while residing in the United States.

Source: Immigration and Naturalization Service and National Science Foundation data, Table D1 and Table D4, fiscal year 1972.

Africa, 5 percent; and Oceania, 1 percent. Whether these patterns will continue is open to conjecture, but it will be important in future years to continue to differentiate the group which converts from nonimmigrant to immigrant status from the group which immigrates directly, whatever its size.

Physicians Admitted as Nonimmigrants Table 9 and Appendix Table 3 give the breakdown of the 4,273 physicians admitted as nonimmigrants in 1972 by region and by country of origin. Although the number and percent of physicians from Asia is substantially higher than that from any other region, the preponderance is not nearly as marked as it is with the immigrant group. One clear difference between the immigrant group and the nonimmigrant group in 1972 is that, for the latter, the country of birth and country of last permanent residence corresponded much more closely; 92 percent of the nonimmigrants were born in and departed from the same country. For this group, then, it would appear that this is the first migratory step; for those who plan to convert to immigrant status after their arrival, it may well be the last.

Table 9
FOREIGN PHYSICIANS AND SURGEONS ADMITTED AS NONIMMIGRANTS, BY REGION OF BIRTH AND REGION OF LAST PERMANENT RESIDENCE: 1972

	Region of birth		Region of last permanent residence	
Region	Number	Percent	Number	Percent
Total	4,273	100	4,273	99
Europe	1,046	24	1,039	24
Americas	1,011	24	1,078	25
Asia	1,976	46	1,936	45
Africa	169	4	143	3
Oceania	71	2	77	2

Source: Appendix Table 3.

U.S.-born Foreign Medical Graduates The country of origin for U.S.-born foreign medical graduates (i.e., the country of medical education) is restricted almost entirely to those in Europe (Table 10); in 1970, some 89 percent of the U.S. FMGs had graduated from schools in 25 European countries. Italy and Switzerland together contributed 45 percent of the total foreign-educated group, and Spain and the United Kingdom another 21 percent. Outside Europe, Mexico contributed the highest proportion of the U.S.-born foreign-trained physicians (7 percent). (These figures represent U.S. citizens returning to the United States after medical school abroad over quite a number of years prior to 1970, and thus they may reflect education or migratory patterns predominating in the 1960s or earlier. They are not strictly comparable to the 1972 immigration figures discussed above.)

Table 10
U.S.-BORN FOREIGN MEDICAL GRADUATES IN THE UNITED STATES, BY COUNTRY OF GRADUATION: 1970

Country of graduation	Number	Country of graduation	Number
Grand total	5,972		
Europe	5,342	Americas	485
Austria	194	Argentina	4
Belgium	208	Brazil	4
Czechoslovakia	10	Chile	7
Denmark	3	Colombia	4
East Germany	53	Costa Rica	1
Finland	2	Cuba	25
France	115	Dominican Republic	18
Greece	41	Haiti	2
Hungary	21	Jamaica	2
Iceland	1	Mexico	413
Ireland	151	Panama	1
Italy	1,375	Peru	2
Netherlands	232	Venezuela	2
Norway	2		
Poland	9	Asia	119
Portugal	10	China	18
		Israel	3
Romania	5	Japan	29
Spain	622	Lebanon	36
Sweden	2		
Switzerland	1,338	Philippines	28
Turkey	1	South Korea	1
		Taiwan	3
USSR	16	Thailand	1
United Kingdom	667		
West Germany	253	Africa	8
Yugoslavia	11	Rhodesia	1
		South Africa	6
Oceania	18	Egypt	1
Australia	18		

Source: Reference 1.

Selected Characteristics

Although performance in medical care delivery is the key criterion on which USMGs and FMGs might be compared, certain demographic or other descriptive

factors are also of interest. Reviewed here are age, sex, major professional activity, specialty, and geographic location.

Following the presentation of the data on the entire FMG group for the factors noted above, the subgroup of FMGs in graduate medical education (specifically, internships and residencies) will be examined separately. The distribution of FMGs in training programs by geographic location, hospital affiliation status, and specialty will be given particular attention. Although this approach does result in some duplication of the topics covered for the entire FMG group, because of the crucial importance that hospital training positions have for FMGs in the U.S., it is felt that this additional examination is warranted.

Age The FMG population, on the average, is younger than the USMG population, as can be seen in Table 11. In 1963, some 49 percent of FMGs were under 40, compared with 37 percent of USMGs. In 1967, the figures were 50 percent and 36 percent; in 1970, the figures were 46 percent and 37 percent. The distribution of physicians by age groups and country of graduation for three selected years is given in Table 12, with percentages for each age.

Table 11
PHYSICIANS IN THE UNITED STATES UNDER AND OVER 40, BY COUNTRY OF GRADUATION: 1963, 1967, and 1970

Age group	U.S. medical graduates		Foreign medical graduates[1]	
	Percent	Number	Percent	Number
1963				
All ages	238,571	100	36,569	100
Under 40	88,894	37	17,899	49
Over 40	149,677	63	18,670	51
1967				
All ages	255,104	100	51,866	100
Under 40	92,151	36	26,042	50
Over 40	162,953	64	25,824	50
1970				
All ages	270,637	100	63,391	100
Under 40	99,536	37	28,946	46
Over 40	171,101	63	34,445	54

[1] Including Canadians.
Source: References 1 and 14.

In analyzing the FMG group, it is clear that most enter the United States early in their careers, which is consistent with the notion that most come with the initial intention of obtaining advanced medical training. Up to 1970, the majority (37,366 or 59 percent) had graduated from medical school within the previous 15 years, and 40 percent since 1960 (1, pp. 165, 277). In general, those countries contributing the largest number of immigrant physicians to the United States are also contributing the largest number of those recently graduated, including the Philippines, India, Canada, Korea, Iran, and Thailand (1). This age differential has implications for the United States, and even more significant implications for the donor countries, which are losing not just doctors, but young doctors.

Sex Members of the medical profession in the United States are predominantly male, but this tends to be more true of Americans than of foreign graduates. In 1963, for example, the percentage of females among the foreign medical graduates (including Canadians) was markedly higher (12 percent) than among U.S. graduates (5 percent) (Table 13). In 1967, the figures were 13 percent and 6 percent; in 1970, the comparable figures were 15 percent and 6 percent. When only those under the age of 40 are considered, the difference between USMGs and FMGs in terms of sex distribution is somewhat more striking (Table 14). In 1963, the proportion of women among the foreign medical graduates under 40 was 12 percent compared with 5 percent for the Americans. For 1967, the figures

were 15 percent and 6 percent; for 1970, the figures were 18 percent and 5 percent (although the latter is based on estimated numbers only).

Changing the frame of reference from U.S. versus foreign medical graduates to female versus male physicians gives similar evidence of a larger foreign component among women physicians than among men. In 1963, among the women medical graduates as a group, the proportion who were foreign graduates was 25 percent and among the men 13 percent (14). These figures have risen steadily over the years. The respective proportions of women and men who were FMGs were 32 percent and 16 percent in 1967, and 36 percent and 18 percent in 1970. Among women under 40, the proportion in 1963 who were foreign graduates was 31 percent; among the men, 16 percent. By 1967, among the women under 40, the proportion who were foreign graduates was still higher (44 percent) than among the men (20 percent). For 1970, the proportion (based on estimated figures) are 51 and 20 percent, respectively.

In summary, then, two trends seem to be clear. There are relatively more women among the foreign medical graduates than among the U.S. medical graduates, especially at the younger ages. In addition, among the female physicians as a group, there are more foreign graduates than among the male physicians as a group. More detailed analysis in terms of activity and location would be required before any inferences might be drawn about the implications of this sex differential for health care delivery in the United States.

Table 12
PHYSICIANS IN THE UNITED STATES,
BY AGE GROUP AND COUNTRY OF GRADUATION:
1963, 1967, and 1970

Age group	All physicians in the U.S.	U.S. medical graduates		Foreign medical graduates [1]	
		Number	Percent	Number	Percent
		1963			
All ages	275,140	238,571	87	36,569	13
Under 30	30,262	25,239	83	5,023	17
30 - 39	76,531	63,655	83	12,876	17
40 - 49	66,574	59,433	89	7,141	11
50 - 59	51,273	44,983	88	6,290	12
60 - 69	29,249	25,584	87	3,665	13
70 and over	21,251	19,677	93	1,574	7
		1967			
All ages	306,970	255,104	83	51,866	17
Under 30	34,615	26,909	78	7,706	22
30 - 39	83,578	65,242	78	18,336	22
40 - 49	75,697	63,703	84	11,994	16
50 - 59	55,661	48,196	87	7,465	13
60 - 69	34,918	30,804	88	4,114	12
70 and over	22,501	20,250	90	2,251	10
		1970			
All ages	334,028	270,637	81	63,391	19
Under 30	38,569	32,831	85	5,738	15
30 - 39	89,913	66,705	74	23,208	26
40 - 49	82,108	64,558	79	17,550	21
50 - 59	58,485	50,489	86	7,996	14
60 - 69	40,056	34,447	86	5,609	14
70 and over	24,897	21,607	87	3,290	13

[1] Including Canadians.
Source: References 1 and 14.

Table 13
PHYSICIANS IN THE UNITED STATES,
BY SEX AND COUNTRY OF GRADUATION:
1963, 1967, and 1970

Sex	All physicians	U.S. medical graduates		Foreign [1] medical graduates	
		Number	Percent	Number	Percent
1963					
Both sexes	275,140	238,571	100	36,569	100
Men	257,818	225,511	95	32,307	88
Women	17,322	13,060	5	4,262	12
1967					
Both sexes	306,970	255,104	100	51,866	100
Men	285,566	240,608	94	44,958	87
Women	21,404	14,496	6	6,908	13
1970					
Both sexes	334,028	270,637	100	63,391	100
Men	308,627	254,444	94	54,183	85
Women	25,401	16,193	6	9,208	15

1 Including Canadians.
Source: References 1 and 14.

Table 14
PHYSICIANS IN THE UNITED STATES
UNDER 40 YEARS OF AGE,
BY SEX AND COUNTRY OF GRADUATION:
1963, 1967, and 1970

Sex	All physicians under 40 years of age	U.S. medical graduates		Foreign medical graduates [1]	
		Number	Percent	Number	Percent
1963					
Both sexes	106,793	88,894	100	17,899	100
Men	99,742	84,014	95	15,728	88
Women	7,051	4,880	5	2,171	12
1967					
Both sexes	118,193	92,151	100	26,042	100
Men	109,079	87,009	94	22,070	85
Women	9,114	5,142	6	3,972	15
1970					
Both sexes [2]	129,300	100,354	100	28,946	100
Men	119,150	95,415	95	23,735	82
Women	10,150	4,939	5	5,211	18

1 Including Canadians.
2 Estimated active physicians only.
Source: References 1 and 14.

Table 15
FOREIGN MEDICAL GRADUATES IN COMPARISON WITH ALL PHYSICIANS
IN THE UNITED STATES, BY MAJOR PROFESSIONAL ACTIVITY AND
COUNTRY OF GRADUATION:
1970

Major professional activity	Total physicians		U.S. medical graduates		Foreign medical graduates [1]	
	Number	Percent	Number	Percent	Number	Percent
Total	334,028	100.0	270,637	100.0	63,391	100.0
Patient care	278,535	83.4	225,622	83.4	52,913	83.4
Office-based practice	192,439	57.6	167,949	62.1	24,490	38.6
Interns and residents	51,228	15.3	33,969	12.6	17,259	27.2
Full-time physician staff	34,868	10.4	23,704	8.8	11,164	17.6
Other professional activity	32,310	9.7	25,542	9.4	6,768	10.7
Medical teaching	5,588	1.7	4,446	1.6	1,142	1.8
Administration	12,158	3.6	10,667	3.9	1,491	2.4
Research	11,929	3.6	8,321	3.1	3,608	5.7
Other	2,635	0.8	2,108	0.8	527	0.8
Not classified	358	0.1	73	- [2]	285	- [2]
Inactive	19,621	5.9	17,330	6.4	2,291	3.6
Address unknown	3,204	1.0	2,070	0.8	1,134	1.8

1 Including Canadians.
2 Less than 0.05 percent.
Source: Reference 1.

Major Professional Activity Foreign medical graduates in house staff or other full-time hospital positions are a major aspect of the whole medical migration phenomenon, because these positions act as a point of ready access to permanent practice in the United States. By no means are all foreign physicians in hospital practice, however; nearly 25,000 of 63,391 (or 39 percent) foreign medical graduates (including Canadians) were in office-based practice in 1970 (Table 15). Over 4,700 foreign-trained physicians (7 percent) were in medical teaching or research, and almost 1,500 (2 percent) in administration.

Taking all physicians as the frame of reference, only about 13 percent of the physicians in office practice in 1970 were graduates of foreign medical schools (Table 1). This percentage may be expected to increase in the future, however, as more physicians leave graduate educational posts and as requirements for State licensure become more standardized in terms of reciprocity. As of 1970, foreign medical graduates were most concentrated in hospital-based patient care, in that one-third of all physicians in that category were foreign medical graduates: 35 percent of the interns or residents and 32 percent of the full-time hospital staff. In addition, 30 percent of all physicians in research were foreign medical graduates, as were 20 percent of all physicians in medical teaching, and 12 percent of all physicians in administration.

Foreign medical graduates have long made a substantial contribution to American medical research. A study by West in the mid-1960s concluded that the United States was the recipient of substantial foreign aid in terms of the number of biomedical scientists (15). More studies in this area need to be done in light of the manpower and funding situation of the 1970s. Until recently, manpower studies of resources for medical research undertaken by the National Institutes of Health had taken little note of the substantial role of foreign medical graduates (16). The current effort in the Division of Manpower Intelligence, Bureau of Health Resources Development, to project the supply and output requirements for health manpower to 1990 is a major change of direction in this regard, however; FMGs occupy a central role in that analysis (17).

Specialty Total numbers of foreign medical graduates (including Canadians) compared by specialty with the total number of physicians in the United States for 1970 are presented in Table 16. A high proportion of FMGs in anesthesiology, pathology, pediatric cardiology, and physical medicine is seen. FMGs as a whole are less often found in dermatology, occupational medicine, ophthalmology, orthopedic surgery, and public health.

The percentage distribution of FMGs by selected specialty (Table 17) indicates that about 40 percent of the total FMG group can be found in one of the five major specialties (internal medicine, pediatrics, general surgery, obstetrics and gynecology, and psychiatry). With the addition of general practice, about 52 percent of the FMG group is included. Roughly the same proportion of USMGs are in the five major specialties (38 percent), but the addition of general practice brings the total to 57 percent.

The distribution of foreign medical graduates (including Canadian) by specialty and major professional activity is given in Appendix Table 4. Table 18 presents the distribution of FMGs in selected specialties by major activity, indicating some differences by specialty among the three major activities. Some 47 percent of those FMGs in hospital-based practice (interns, residents, and full-time staff) are found in one of the five major specialties, compared with 40 percent of those in office-based practice and 34 percent of those in all other activities. When FMGs in general practice are added, however, the highest proportion of FMGs is found in office-based practice (64 percent) rather than hospital-based practice (53 percent) or other activities (36 percent).

Geographical Area One distinctive characteristic of American medicine is its locus in major cities. Foreign medical graduates, even more than their American counterparts, gravitate toward metropolitan areas. In 1970, for example, about 9 percent of all foreign medical graduates (excluding Canadians) were located in nonmetropolitan areas. Approximately 15 percent of the non-Federal USMGs were located in nonmetropolitan areas. Of the resident population in 1970, about 26 percent could be found outside SMSAs (1, 18). Table 19 gives the distribution of FMGs (excluding Canadians) in metropolitan areas by region of medical education as of 1970. As noted earlier, almost 90 percent of all FMGs are located in cities, but among the FMG group, there is some variation as to location. Those FMGs educated in the Americas are rather more dispersed into the nonurban areas of America than the FMG group. On the other hand, those educated in India and Pakistan are notably more concentrated in the cities.

Table 16
PHYSICIANS IN THE UNITED STATES, BY SPECIALTY AND COUNTRY OF GRADUATION: 1970

Specialty	Total physicians	Foreign medical graduates [1]			Foreign medical graduates as percent of total physicians
		Canadians	Other	Total	
Total	334,028	6,174	57,217	63,391	19
General practice	57,948	770	6,742	7,512	13
Allergy	1,719	36	191	227	13
Cardiovascular diseases	6,476	101	1,249	1,350	21
Dermatology	4,003	83	388	471	12
Gastroenterology	2,010	41	390	431	21
Internal medicine	41,872	522	6,372	6,894	16
Pediatrics	17,941	245	3,542	3,787	21
Pediatric allergy	391	4	80	84	21
Pediatric cardiology	487	11	169	180	37
Pulmonary disease	2,315	46	618	664	29
General surgery	29,761	462	5,286	5,748	19
Neurological surgery	2,578	80	409	489	19
Obstetrics and gynecology	18,876	339	3,064	3,403	18
Ophthalmology	9,927	210	810	1,020	10
Orthopedic surgery	9,620	205	882	1,087	11
Otolaryngology	5,409	128	641	769	14
Plastic surgery	1,600	34	213	247	15
Colon and rectal surgery	667	22	62	84	13
Thoracic surgery	1,809	27	365	392	22
Urology	5,795	106	739	845	15
Aviation medicine	1,188	14	32	46	4
Anesthesiology	10,860	261	3,304	3,565	33
Child psychiatry	2,090	75	425	500	24
Diagnostic roentgenology	1,968	32	336	368	19
Forensic pathology	200	5	42	47	24
Neurology	3,074	89	624	713	23
Occupational medicine	2,713	80	179	259	10
Psychiatry	21,146	563	5,025	5,588	26
Pathology	10,283	247	3,132	3,379	33
General preventive medicine	804	17	90	107	13
Physical medicine and rehabilitation	1,479	27	501	528	36
Public health	3,029	64	261	325	11
Radiology	10,524	175	1,407	1,582	15
Therapeutic radiology	868	19	209	228	26
Other and unspecified	19,415	399	6,363	6,762	35
Inactive, unknown, and not classified	23,183	635	3,075	3,710	16

[1] Including Canadians.

Source: Reference 1. Balfe, B.E., Lorant, J.H., and Todd, C. Reference Data on the Profile of Medical Practice. Chicago: American Medical Association, 1971, pp. 6-8.

Table 17
PHYSICIANS IN THE UNITED STATES IN SELECTED SPECIALTIES, BY COUNTRY OF GRADUATION:
1970

Specialty	Total physicians	Foreign medical graduates [1] Number	Foreign medical graduates [1] Percent	U.S. medical graduates Number	U.S. medical graduates Percent
Total	334,028	63,391	100	270,637	100
Selected specialties and general practice	187,544	32,932	52	154,612	57
Selected specialties	129,596	25,420	40	104,176	38
Internal medicine	41,872	6,894	11	34,987	13
Pediatrics	17,941	3,787	6	14,154	5
General surgery	29,761	5,748	9	24,013	9
Obstetrics and gynecology	18,876	3,403	5	45,473	6
Psychiatry	21,146	5,588	9	15,558	6
General Practice	57,948	7,512	12	50,436	19
All other [2]	146,484	30,459	48	116,025	43

[1] Including Canadians.

[2] Includes all other specialties, unspecified specialties, inactive, unknown, and not classified.

Source: Compiled from Table 16.

Note: Percentages may not add due to independent rounding.

Table 18
FOREIGN MEDICAL GRADUATES [1] IN THE UNITED STATES IN SELECTED SPECIALTIES, BY MAJOR PROFESSIONAL ACTIVITY:
1970

Specialty	Hospital-based practice Number	Hospital-based practice Percent	Office based Practice Number	Office based Practice Percent	Other activities Number	Other activities Percent
Total	28,423	100.0	24,490	100.0	6,768	100.0
Selected specialties and general practice	14,922	52.5	15,560	63.5	2,450	36.2
Selected specialties	13,433	47.3	9,699	39.6	2,288	33.8
Internal medicine	3,576	12.6	2,699	11.0	619	9.2
Pediatrics	1,893	6.7	1,439	5.9	455	6.7
General surgery	3,454	12.2	2,013	8.2	281	4.2
Obstetrics/Gynecology	1,490	5.2	1,673	6.8	240	3.5
Psychiatry	3,020	10.6	1,875	7.7	693	10.2
General practice	1,489	5.2	5,861	23.9	162	2.4
All other [2]	13,501	47.5	8,930	36.5	4,318	63.8

1 Including Canadians.

2 Including all other and unspecified specialties and excluding inactive, unknown, and not classified.

Source: Appendix Table 4.

Table 19
FOREIGN MEDICAL GRADUATES IN METROPOLITAN OR NONMETROPOLITAN AREAS OF THE UNITED STATES, BY REGION OF ORIGIN: 1970

Region of origin	Total	Standard metropolitan statistical area		Non-standard metropolitan statistical area		Unknown	
		Number	Percent	Number	Percent	Number	Percent
All regions	57,217 [1]	51,053	89	5,186	9	978	2
Europe	24,756	21,898	88	2,555	10	303	1
Americas	9,927	8,192	83	1,312	13	423	4
Asia, total	20,829	19,368	93	1,235	6	226	1
India and Pakistan	4,741	4,543	96	157	3	41	1
All other	16,088	14,825	92	1,078	7	185	1
Africa	1,301	1,216	93	68	5	17	1
Oceania	404	379	94	16	4	9	2

1 Excluding Canandians.
Source: Reference 1.

The uneven geographical distribution is also seen on a State-by-State breakdown (Tables 20 and 21). Taking the State of New York as a whole, for example, foreign medical graduates represented about 19 percent of all physicians in 1959 (19, p. 11); the proportion has risen steadily, such that in 1970, about 38 percent of physicians in the State were graduates of foreign schools (Table 20). Other States notable for a rising and substantial proportion of foreign-trained physicians are Rhode Island, Delaware, New Jersey, and Illinois. In contrast, States such as Arkansas, Idaho, Mississippi, and Utah have an inconsequential proportion of FMGs (19).

Of the total FMG population (including Canadians), almost 72 percent were distributed in 10 States, with New York having by far the largest share (Tables 21 and 22). U.S. medical graduates as of 1970 were not quite as heavily concentrated; 57 percent of the U.S. graduates were in 10 States. These were not all the same States as the FMGs, however, the top 10 States for U.S. medical graduates include Texas but not Maryland. The top ten States in proportion of either FMGs or USMGs did not take in as high a proportion of the U.S. resident population, however. About 51 percent of the U.S. population (as of December 31, 1970) was found in the 10 States with 72 percent of the FMGs; looking at the 10 States with the 57 percent of USMGs, some 55 percent of the population is included. This would appear to substantiate the notion that FMGs are concentrated in certain States (especially New York) beyond what might be expected in comparison with the distribution of either the resident population or USMGs, but this remains to be evaluated further, controlling for such variables as age, sex, and current professional activity.

Six States are among the top ten in both proportion of FMGs out of the total number of physicians in that State and in proportion of FMGs out of the total number of FMGs: New York, New Jersey, Illinois, Ohio, Michigan, and Maryland (Table 22). Other States having a high proportion of FMGs relative to the total number of doctors in the State are Rhode Island, Delaware, West Virginia, and Connecticut. The FMGs in these States are not necessarily in the same activities, however (Appendix Table 5). In some of these States, a relatively high proportion are filling house staff positions (e.g., Michigan). In other States, the proportion of FMGs in graduate medical education is lower (e.g., Delaware or West Virginia) and the FMGs in those States are more highly concentrated in office or hospital-based practice. (Appendix Table 5 should not be compared directly with Tables 20-22, because it does not include Canadians and the others do. A breakdown of Canadian graduates by activity and location was not available at the time this report was prepared.)

Table 20
NUMBER AND PERCENT OF PHYSICIANS IN EACH STATE, BY COUNTRY OF GRADUATION: 1970

State	Total physicians in State	U.S. medical graduates	Foreign medical graduates			Percent of physicians who are	
			Total	Canadians	Other	U.S. medical graduates	Foreign medical graduates
Total	334,028	270,637	63,391	6,174	57,217	81.0	19.0
Alabama	3,377	3,219	158	11	147	95.3	4.7
Alaska	324	303	21	4	17	93.5	6.5
Arizona	2,938	2,608	330	48	282	88.8	11.2
Arkansas	1,955	1,924	31	6	25	98.4	1.6
California	41,640	37,476	4,164	1,184	2,980	90.0	10.0
Colorado	4,386	4,076	310	51	259	92.9	7.1
Connecticut	6,072	4,617	1,455	188	1,267	76.0	24.0
Delaware	783	543	240	23	217	69.3	30.7
District of Columbia	4,073	3,253	820	42	778	79.9	20.1
Florida	11,451	9,513	1,938	169	1,769	83.1	16.9
Georgia	5,546	5,088	458	24	434	91.7	8.3
Hawaii	1,235	999	236	33	203	80.9	19.1
Idaho	718	697	21	10	11	97.1	2.9
Illinois	16,323	11,608	4,715	173	4,542	71.1	28.9
Indiana	5,470	4,954	516	43	473	90.6	9.4
Iowa	3,061	2,708	353	30	323	88.5	11.5
Kansas	2,910	2,582	328	29	299	88.7	11.3
Kentucky	3,560	3,192	368	22	346	89.7	10.3
Louisiana	4,768	4,476	292	31	261	93.9	6.1
Maine	1,186	903	283	109	174	76.1	23.9
Maryland	9,518	7,140	2,378	129	2,249	75.0	25.0
Massachusetts	12,576	10,227	2,349	351	1,998	81.3	18.7
Michigan	11,364	8,559	2,805	429	2,376	75.3	24.7
Minnesota	6,145	5,303	842	197	645	86.3	13.7
Mississippi	2,077	2,001	76	9	67	96.3	3.7
Missouri	6,314	5,283	1,031	49	982	83.7	16.3
Montana	787	743	44	14	30	94.4	5.6
Nebraska	1,855	1,777	78	8	70	95.8	4.2
Nevada	595	557	38	24	14	93.6	6.4
New Hampshire	1,098	857	241	96	145	78.1	21.9
New Jersey	10,923	7,565	3,358	134	3,224	69.3	30.7
New Mexico	1,390	1,242	148	21	127	89.4	10.6
New York	44,800	27,795	17,005	1,059	15,946	62.0	38.0
North Carolina	6,069	5,696	373	62	311	93.9	6.1
North Dakota	660	528	132	41	91	80.0	20.0
Ohio	14,740	10,996	3,744	228	3,516	74.6	25.4
Oklahoma	2,899	2,775	124	19	105	95.7	4.3
Oregon	3,181	2,981	200	59	141	93.7	6.3
Pennsylvania	18,712	15,779	2,933	223	2,710	84.3	15.7
Rhode Island	1,638	1,084	554	59	495	66.2	33.8
South Carolina	2,670	2,560	110	11	99	95.9	4.1
South Dakota	629	556	73	3	70	88.4	11.6
Tennessee	5,022	4,698	324	18	306	93.5	6.5
Texas	14,952	13,307	1,645	105	1,540	89.0	11.0
Utah	1,569	1,508	61	18	43	96.1	3.9
Vermont	868	756	112	41	71	87.1	12.9
Virginia	6,552	5,588	964	68	896	85.3	14.7
Washington	5,562	4,939	623	194	429	88.8	11.2
West Virginia	1,946	1,465	481	18	463	75.3	24.7
Wisconsin	5,588	4,893	695	53	642	87.6	12.4
Wyoming	364	346	18	5	13	95.0	5.0
Possessions	2,836	1,412	1,424	10	1,414	49.8	50.2
APO-FPO	3,149	2,912	237	33	204	92.5	7.5
Address unknown	3,204	2,070	1,134	156	978	64.6	35.4

Source: Reference 1.

Table 21
DISTRIBUTION OF U.S. MEDICAL GRADUATES AND FOREIGN MEDICAL GRADUATES, BY STATE: 1970

State	U.S. medical graduates		Foreign medical graduates [1]	
	Number	Percent	Number	Percent
Total	270,637	100.0	63,391	100.0
Alabama	3,219	1.2	158	.2
Alaska	303	.1	21	– [2]
Arizona	2,608	1.0	330	.5
Arkansas	1,924	.7	31	– [2]
California	37,476	13.9	4,164	6.6
Colorado	4,076	1.5	310	.4
Connecticut	4,617	1.7	1,455	2.3
Delaware	543	.2	240	.4
District of Columbia	3,253	1.2	820	1.3
Florida	9,513	3.5	1,938	3.1
Georgia	5,088	1.9	458	.7
Hawaii	999	.4	236	.4
Idaho	697	.3	21	– [2]
Illinois	11,608	4.3	4,715	7.4
Indiana	4,954	1.8	16	.8
Iowa	2,708	1.0	353	.6
Kansas	2,582	1.0	328	.5
Kentucky	3,192	1.2	368	.6
Louisiana	4,476	1.7	292	.5
Maine	903	.3	283	.4
Maryland	7,140	2.6	2,378	3.8
Massachusetts	10,227	3.8	2,349	3.7
Michigan	8,559	3.2	2,805	4.4
Minnesota	5,303	2.0	842	1.3
Mississippi	2,001	.7	76	.1
Missouri	5,283	2.0	1,031	1.6
Montana	743	.3	44	.1
Nebraska	1,777	.7	78	.1
Nevada	557	.2	38	.1
New Hampshire	857	.3	241	.4
New Jersey	7,565	2.8	3,358	5.3
New Mexico	1,242	.5	148	.2
New York	27,795	10.3	17,005	26.8
North Carolina	5,696	2.1	373	.6
North Dakota	528	.2	132	.2
Ohio	10,996	4.1	3,744	5.9
Oklahoma	2,775	1.0	124	.2
Oregon	2,981	1.1	200	.3
Pennsylvania	15,779	5.8	2,933	4.6
Rhode Island	1,084	.4	554	.9
South Carolina	2,560	1.0	110	.2
South Dakota	551	.2	73	.1
Tennessee	4,698	1.7	324	.5
Texas	13,307	4.9	1,645	2.6
Utah	1,508	.6	61	.1
Vermont	756	.3	112	.2
Virginia	5,588	2.1	964	1.5
Washington	4,939	1.8	623	1.0
West Virginia	1,465	.5	481	.8
Wisconsin	4,893	1.8	695	1.1
Wyoming	346	.1	18	– [2]
Other and Unknown	6,394	2.4	2,795	4.4

1 Including Canadians.
2 Less than .05 percent.
Source: Reference 1.

Table 22
TEN HIGHEST RANKING STATES ON BASIS OF POPULATION, FOREIGN MEDICAL GRADUATES, U.S. MEDICAL GRADUATES, AND PROPORTION OF FOREIGN MEDICAL GRADUATES: 1970

State	Resident population 12/31/70		U.S. medical graduates		Foreign medical graduates [1]		Foreign medical graduates [1]	
	Rank	Percent of U.S.	Rank	Percent of total USMGs	Rank	Percent of total FMGs	Rank	Percent of all physicians in State
10 - State total ..		54.8		56.5		71.6		–
California	1	9.9	1	13.9	3	6.6	–	–
New York	2	8.9	2	10.3	1	26.8	1	38.0
Pennsylvania	3	5.7	3	5.8	6	4.6	–	–
Texas	4	5.6	4	4.9	–	–	–	–
Illinois	5	5.5	5	4.3	2	7.4	5	28.9
Ohio	6	5.2	6	4.1	4	5.9	6	25.4
Michigan	7	4.4	9	3.2	7	4.4	9	24.7
New Jersey	8	3.5	10	2.8	5	5.3	4	30.7
Florida	9	3.4	8	3.5	10	3.1	–	–
Massachusetts	10	2.8	7	3.8	9	3.7	–	–
Maryland	–	1.9	–	–	8	3.8	7	25.0
Rhode Island	–	–	–	–	–	–	2	33.8
Delaware	–	–	–	–	–	–	3	30.8
West Virginia	–	–	–	–	–	–	8	24.7
Connecticut	–	–	–	–	–	–	10	24.0

[1] Including Canadians.

Source: Tables 20 and 21. Roback, G.A., Distribution of Physicians in the U.S., 1971. Chicago: American Medical Association, 1972.

Note: Percentages may not add due to independent rounding.

It has been assumed that the influx of foreign medical graduates filled gaps in the geographical distribution of physicians in the United States. A study by Butter and Shaffner has questioned this assumption, however (20). The investigators compared the spatial distribution of all physicians with that of U.S. -trained physicians, making a distinction between the aggregate impact and the distributional impact of foreign-trained physicians. Their results indicated that in the Nation as a whole, foreign medical graduates have increased rather than decreased the inequality among States in terms of physician distribution. More than one-half of the foreign-trained physicians in the United States were located in States where their presence made the already existing inequalities among the States more extreme. The same held true for the inequalities between urban and rural areas.

The distribution of foreign medical graduates (excluding Canadians) by activity and State is given in Appendix Table 5. The proportion of FMGs in graduate medical education (i.e., internships and residencies) ranges between 20 and 39 percent for 30 of the States (Table 23). The District of Columbia, Louisiana, Michigan, Pennsylvania, and Arkansas all have over 40 percent of their FMGs in internships or residencies. Some 35 States have between 20 and 49 percent of their FMGs in office-based practice; Alaska, Maine, New Hampshire, North Dakota, South Dakota, and Wyoming all have more than 60 percent of their FMGs in office-based practice, however. Almost all the States, 45 of 51, have between 10 and 29 percent of their FMGs in hospital-based practice; only Arkansas, Idaho, Kentucky, Oklahoma, and South Carolina have more than 30 percent in such practice. Finally, some 44 States

have between 0 and 19 percent of their FMGs in other activities.

Table 23
NUMBER OF STATES PLUS THE DISTRICT OF COLUMBIA BY PROPORTION OF FOREIGN MEDICAL GRADUATES IN SPECIFIED MAJOR PROFESSIONAL ACTIVITY: 1970

Percent of foreign medical graduates in specified activity	Office-based practice	Full-time hospital practice	Interns and residents	Other activity
Total	51	51	51	51
0 - 9	2	1	8	23
10 - 19	3	19	8	21
20 - 21	12	26	16	6
22 - 39	12	4	14	1
30 - 49	11	1	4	0
50 - 59	5	0	1	0
60 - 69	3	0	0	0
70 - 79	3	0	0	0

Source: Compiled from Appendix Table 5.

Foreign Medical Graduates in Graduate Medical Education *

Background Primary responsibility for clinical graduate education of physicians in the United States, as elsewhere, rests with hospitals, with standards set and overseen by national professional groups (21). The internship has been claimed from time to time as the fifth year of medical school, although by the 1950s, most medical schools (although not State licensing boards) had dropped the internship as a requirement for the M.D. degree. In part because of the growing desire on the part of the medical profession for specialty recognition, emphasis has increasingly been placed on residency programs, and the connections between hospital training programs and medical schools have become more formalized. In 1960, for example, only 38 percent of the internships and 54 percent of the residencies were in hospitals affiliated with university medical schools. By 1972, however, 84 percent of the internships offered and 90 percent of the residencies offered were in so-called "affiliated" hosptials. In terms of filled positions, 83 percent of the internships and 89 percent of the residencies were in affiliated hospitals (22).

Between 1940 and 1960, the number of physicians in internship and residency training programs trebled from fewer than 12,000 to nearly 38,000. By 1960, one of every seven physicians was an intern or resident. Since then, the rate of increase has slowed but the aggregate number has nonetheless continued to grow until the number house staff in 1972 exceeded 56,000 (22).

This large number of physicians in internships and residencies does not give a completely accurate picture of the number of *potential* house staff, however. There are more approved internship and residency positions offered each year than there are physicians available to fill them. For example, at the internship level, there are now at least half again as many internship posts available as there are U.S. medical graduates (Table 24). In 1949-50, some 80 percent of the internships offered in the United States were filled; in 1959-60, the proportion was 82 percent, and in 1969-70, it was 72 percent. The most recent figure available is 82 percent (22, 23). For residencies, the decrease in filled positions has been somewhat more extreme. In 1949-50, for example, 94 percent of the positions were filled; in 1959-60, some 87 percent. By 1969-70, it had dropped to 82 percent, and currently it is 88 percent.

A substantially larger percent of the available residencies in nonaffiliated hospitals as opposed to those in affiliated hospitals (23 percent and 11 percent, respectively) were unfilled in 1971. Unfilled internships in nonaffiliated and affiliated hospitals were 22 percent and 17 percent, respectively.

The fact that at least 1,500 hospitals with graduate training programs determine the number of house staff positions to be offered (subject to the approval of the Council on Medical Education) needs to be stressed, for these uncoordinated decisions have had a direct impact on the number of foreign medical graduates now in the United States. (In addition, over 6,000 other hospitals in the United States offer a variety of employment positions, but these do not provide graduate medical education in the usual sense of internships, residencies, or other training.) Whatever the individual motivation behind a physician's decision to come to the United States, without a job offer most would probably have been unable to do so. Relatively permissive visa arrangements and requirements for professional certification

* Data presented in this section for years since 1970 are taken from recent AMA publications and do not include Canadians with other FMGs unless specified.

have facilitated, but not caused, the flow of foreign medical graduates into hospital training (or employment) positions. The figures noted in the preceding paragraphs indicate that a substantial pool of available house staff positions exists even after U.S. graduates have been accommodated.

Table 24
NUMBER OF APPROVED INTERNSHIPS OFFERED IN THE UNITED STATES AND ITS TERRITORIES AND POSSESSIONS IN RELATION TO GRADUATES OF U.S. MEDICAL SCHOOLS:
selected years 1939-40 through 1973-74

Year	Internships offered	Graduates of U.S. medical schools [1]	Internships offered per medical graduate
1939 - 40	6,684	5,089	1.3
1949 - 50	9,124	5,094	1.8
1954 - 55	11,048	6,861	1.6
1955 - 56	11,616	6,977	1.7
1956 - 57	11,895	6,845	1.7
1957 - 58	12,325	6,796	1.8
1958 - 59	12,469	6,861	1.8
1959 - 60	12,580	6,860	1.8
1960 - 61	12,547	7,081	1.8
1961 - 62	12,074	6,994	1.7
1962 - 63	12,024	7,168	1.7
1963 - 64	12,229	7,264	1.7
1964 - 65	12,728	7,336	1.7
1965 - 66	12,954	7,409	1.7
1966 - 67	13,569	7,574	1.8
1967 - 68	13,761	7,743	1.8
1968 - 69	14,112	7,973	1.8
1969 - 70	15,003	8,058	1.9
1970 - 71	15,354	8,367	1.8
1971 - 72	15,422	8,974	1.7
1972 - 73	13,650	9,551	1.4
1973 - 74	15,396	10,391	1.5

1 For year ending in June before the intern year.

Source: 1940-1960 figures from William H. Stewart and Marion E. Altenderfer, *Health Manpower Source Book, Hospital House Staffs*, Public Health Service Publication No. 263, Section 13, Table 4. 1961-74 figures from *Journal of the American Medical Association*, Education Numbers.

Type of House Staff Position Over 21,950 foreign-trained physicians were in graduate medical education positions in American hospitals and universities in 1972-73, a ten-fold increase since 1950-51 (Table 25). Approximately 3,920 were interns, 14,440 were residents, and another 3,590 were in "other" graduate training positions. The "other" category includes posts classified as research or teaching fellowships, clinical traineeships, and work leading toward specialization and possible specialty board certification.

This "other" category grew from 1,024 foreign medical graduates in 1962-63 to 4,106 in 1971-72, but dropped the following year to 3,595 foreign-trained physicians, representing 40 percent of all trainees in the category. The proportions of these FMGs are particularly high in colon and rectal surgery, general practice, anesthesiology, and general surgery. Some foreign medical graduate "trainees" are probably classified as "other" for reasons relating to program accreditation, e.g., a hospital may employ a "Fellow" in anesthesiology even without an approved residency training program (19). Some physicians in this category may also be working in nonpatient care activities which do not require physicians to have the ECFMG certificate.

Sex Of the 1,739 women in internship positions in 1972, over 52 percent were graduates of foreign medical schools. Similarly, of the 4,942 women in residencies, 53 percent were FMGs. Furthermore, in 1972, some 23 percent of the FMGs in internships were women, compared with 11 percent of the USMGs (including Canadians). For residents, the comparable figures were 18 percent for FMGs and 11 percent for USMGs (10).

The National Intern and Resident Matching Program (NIRMP) In 1951, the National Intern Matching Program was set up as a means of reducing the competition for interns among hospitals and of introducing some order into the selection process for prospective interns. Under the guidance of the Council on Medical Education, the Association of American Medical Colleges, and various hospital organizations, the Matching Program developed a procedure and a set of rules by which hospitals and prospective interns could make their selection of, respectively, house staff and posts. In essence, the computer-based Program has as one of its chief advantages the fact that all participants will be "matched" (i.e., appointed) to the hospital highest on his confidential list of preferred hospitals which will accept him. Since 1968, the program has also been available for residents, and is now known as the National Intern and Resident Matching Program (10,

pp. 103-110). Since its inception, the NIRMP has brought more organization to the entire process of selecting house staff and positions; by providing a sophisticated clearing house function, medical students could henceforth become interns (and interns become residents) in a more orderly manner. There is no compulsion on hospitals (or, for that matter, on prospective house staffs) to use the matching program, but during the past 21 years, over 98 percent of hospitals with approved intern training programs have participated. The program matches over 9,000 participants a year, which represents the vast majority of U.S. medical school graduates in any given year. In 1972, over 8,700 U.S. medical graduates participated, and almost 8,400 were matched. The NIRMP has not been used to the same extent by foreign medical graduates, although it is available to them. In 1972, for example, 584 FMGs participated in NIRMP (of at least 5,000 new foreign-trained physicians who entered house staff training) and 490 were matched (24, p. 107). Of the 200 Canadian graduates who participated, 165 were matched. It is anticipated, however, that the number of FMGs participating in 1973 and thereafter will rise significantly, because the regulations have been modified to make it easier for FMGs to participate (24, p. 106).

Table 25
FOREIGN MEDICAL GRADUATES IN GRADUATE TRAINING PROGRAMS IN THE UNITED STATES,
1950-51 through 1972-73

Year[2]	Interns		Residents		Other graduate trainees		Total foreign medical graduates in graduate training programs[1]	
	Number	Percent of filled positions	Number	Percent of filled positions	Number	Percent of filled positions	Number	Percent of filled positions
1950 - 51	722	10	1,350	9	N.A.	–	2,072	10
1951 - 52	1,116	14	2,233	14	N.A.	–	3,349	14
1952 - 53	1,353	18	3,035	18	N.A.	–	4,388	18
1953 - 54	1,787	22	3,802	20	N.A.	–	5,589	21
1954 - 55	1,761	19	3,275	16	N.A.	–	5,036	17
1955 - 56	1,859	19	4,174	19	N.A.	–	6,033	19
1956 - 57	1,988	20	4,753	21	N.A.	–	6,741	20
1957 - 58	2,079	20	5,543	22	N.A.	–	7,622	22
1958 - 59	2,315	22	6,042	23	N.A.	–	8,357	23
1959 - 60	2,545	25	6,912	15	N.A.	–	9,457	25
1960 - 61	1,753	19	8,182	29	N.A.	–	9,935	26
1961 - 62	1,273	16	7,723	26	N.A.	–	8,996	24
1962 - 63	1,669	19	7,062	24	1,024	35	9,755	24
1963 - 64	2,566	27	7,052	24	1,791	40	11,409	26
1964 - 65	2,821	28	8,153	26	1,925	39	12,899	28
1965 - 66	2,361	24	9,113	29	2,355	41	13,829	29
1966 - 67	2,793	27	9,505	30	2,566	41	14,864	31
1967 - 68	2,913	28	10,627	31	3,077	43	16,617	32
1968 - 69	3,270	31	11,231	32	4,046	50	18,547	35
1969 - 70	2,939	27	12,126	33	3,220	N.A.	18,285	N.A.
1970 - 71	3,339	29	12,968	33	3,331	43	19,638	33
1971 - 72	3,946	33	13,520	32	4,106	45	21,572	34
1972 - 73	3,924	35	14,440	32	3,595	40	21,959	34

[1] Excluding Canadians.

[2] ECFMG deadline imposed in 1960-61; amendments to Immigration and Nationality Act in 1965-66.

Source: Reference 22; Directory of Approved Internships and Residencies, selected years.

The matching program may also be one factor in the differential placement of U.S. and foreign-trained physicians (excluding Canadians) in affiliated and nonaffiliated institutions. Approved training programs, especially in university-affiliated hospitals, tend to be the more prestigious and one result of the NIRMP has been a more efficient system for distributing U.S. graduates to these preferred hospital programs. Internship placements run about 3:1 in favor of university-affiliated hospitals (25, pp. 20-21). Interns in these hospitals are also, one might assume, more likely than those in nonaffiliated hospitals to take residency posts in the university setting. For example, foreign medical graduates represented only 29 percent of house staff in affiliated hospitals in 1972, compared with 64 percent of the house staff in nonaffiliated hospitals (Table 26).

Table 26
FOREIGN MEDICAL GRADUATES SERVING AS INTERNS AND RESIDENTS IN AFFILIATED AND NONAFFILIATED HOSPITALS IN THE UNITED STATES, BY SIZE OF HOSPITAL: 1972

Affiliation and size of hospital	Total filled positions	Filled by foreign medical graduates [1]	Percent filled by foreign medical graduates
Grand total	56,021	18,364	33
Affiliated hospitals:			
Total	50,350	14,741	29
Combined hospitals [2]	18,651	3,954	21
Less than 200 beds	2,503	681	27
200 - 299	1,653	691	42
300 - 499	8,192	3,262	40
500 and over	19,349	6,152	32
Nonaffiliated hospitals:			
Total	5,671	3,623	64
Combined hospitals [2]	403	208	52
Less than 200 beds	609	319	52
200 - 299	833	671	81
300 - 499	1,834	1,357	74
500 and over	1,992	1,068	54

[1] Excluding Canadians.

[2] Includes programs using the resources of two or more hospitals.

Source: Reference 22.

Affiliated and Nonaffiliated Hospitals

The great majority of internships and residencies now being offered are in hospitals which have entered into affiliation agreements with medical schools. Insofar as nonaffiliated programs continue to exist, foreign-trained physicians will play a much more substantial role than U.S. graduates in them (Table 26). Over 3,620 foreign-trained physicians were working as interns and residents in nonaffiliated hospitals in 1972, compared with only 2,040 U.S. or Canadian graduates. The 1950s saw a marked tendency for foreign house staff to receive appointments in hospitals not affiliated with university medical schools. By 1960, nearly twice as many foreign physicians were in nonaffiliated as in affiliated hospitals (26). This has been completely reversed in the intervening decade, however. In 1972, for example, over five times as many foreign-trained residents were in affiliated hospitals compared with nonaffiliated hospitals (Table 27). Only 16 percent of all foreign-trained residents were working in nonaffiliated hospitals in 1972, down from a high of 63 percent in 1964.

Because of the parallel shift by hospitals from nonaffiliated to affiliated status, no conclusion should be drawn from changes in the proportions of FMGs in affiliated versus nonaffiliated programs for the various years (as given in Table 27). More refined analysis is needed to show whether the percentage of foreign-trained house staff in affiliated hospitals has increased over and above what can be accounted for by the change in hospital affiliation status.

Regardless of the hospital's affiliation status, the number of foreign medical graduates in hospitals as a proportion of the total house staff does not show a consistent pattern. Some hospitals have house staffs composed entirely or predominantly of foreign physicians. Others have few or none. A statistical review of affiliated and nonaffiliated hospitals by the AMA in 1967 showed more than 300 hospitals (31 percent of the hospitals reporting) in which foreign medical graduates comprised more than 75 percent of the residents (Table 28). Were the figures to be broken down into affiliated and nonaffiliated hospitals, the proportion of FMG house staff for the nonaffiliated hospitals alone would undoubtedly be higher.

Table 27
NUMBER OF FOREIGN MEDICAL GRADUATES [1]
SERVING AS RESIDENTS IN
AFFILIATED AND NONAFFILIATED HOSPITALS
IN THE UNITED STATES:
1963-64 -- 1972-73

Year	FMG Residents in All Hospitals		Affiliated hospitals		Nonaffiliated hospitals	
	Number	Percent	Number	Percent	Number	Percent
1963 - 64 .	7,052	100	2,910	41	4,142	59
1964 - 65 .	8,140	100	3,046	37	5,094	63
1965 - 66 .	9,113	100	4,565	50	4,548	50
1966 - 67 .	9,483	100	4,911	52	4,572	48
1967 - 68 .	10,605	100	6,292	59	4,313	41
1968 - 69 .	11,201	100	7,217	64	3,984	36
1969 - 70 .	N.A.	–	N.A.	–	N.A.	–
1970 - 71 .	12,943	100	9,751	75	3,192	25
1971 - 72 .	13,520	100	10,870	80	2,650	20
1972 - 73 .	14,440	100	12,202	84	2,238	16

[1] Excluding Canadians.
Source: *Directory of Approved Internships and Residencies*, selected years.

Specialty One point relating to affiliated and nonaffiliated programs is the differential distribution of FMGs by specialty. As might be expected, foreign-trained physicians play a relatively large role in hospital service specialties in short supply in nonaffiliated hospitals, and also in specialties devoted to general or primary care. In 1972, for example, over 70 percent of the residency positions in nonaffiliated hospitals in general practice, pathology, neurology, and anesthesiology were filled by foreign-trained physicians; at least 60 percent of the residents in nonaffiliated hospitals in obstetrics and gyneocology, general surgery, colon and rectal surgery, pediatrics, psychiatry, and internal medicine were FMGs. In every case, the proportion of foreign medical graduates in these specialties was much lower in university-affiliated programs (Appendix Table 6). The highest proportion of FMGs in filled positions in affiliated hospitals were in general practice (69 percent), colon and rectal surgery (64 percent), physical medicine (62 percent), anesthesiology (57 percent), and pathology (54 percent). The proportion of FMGs in residencies in affiliated hospitals was higher than in nonaffiliated hospitals in otolaryngology and radiology.

Table 28
FOREIGN MEDICAL GRADUATES [1] AS PERCENTAGE
OF HOUSE STAFFS IN
INDIVIDUAL HOSPITALS:
1967

Percent of foreign medical graduates on staff	Internships		Residencies	
	Number of Hospitals	Percent	Number of Hospitals	Percent
Total reporting	704	100	990	100
Hospitals with 0-25% FMGs	368	52	423	43
Hospitals with 26-50% FMGs	49	7	151	15
Hospitals with 51-75% FMGs	33	5	105	11
Hospitals with 76-100% FMGs	254	36	311	31

[1] Excluding Canadians.
Source: *Directory of Approved Internships and Residencies 1968-69*, Table 14, p. 26. Chicago: American Medical Association, 1968.

Table 29
FOREIGN MEDICAL GRADUATES AS PERCENT OF ALL RESIDENTS, BY SPECIALTY
1963-64 — 1972-73

Specialty	Percentage of foreign medical graduates [1] in filled residency positions [2]								
	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70	1970-71	1971-72	1972-73
Total number of foreign medical graduates in residencies	7,062	8,140	9,113	9,483	10,605	11,201	12,943	13,520	14,440
Anesthesiology	38	39	46	50	50	50	52	54	58
Child psychiatry	17	19	23	22	21	19	24	25	27
Colon and rectal surgery	50	47	64	67	61	55	55	44	65
Dermatology	11	13	12	11	10	9	12	8	9
Family practice	—	—	—	—	—	—	11	11	12
General practice	52	63	66	67	65	55	69	70	79
Internal medicine	23	25	28	30	34	35	35	35	35
Neurological surgery	16	18	17	17	21	22	24	22	20
Neurology	22	24	24	27	28	26	29	30	27
Obstetrics and gynecology	22	25	27	30	33	37	40	40	39
Ophthalmology	8	10	9	9	8	7	8	8	8
Orthopedic surgery	11	12	13	13	15	12	11	9	11
Otolaryngology	11	14	12	12	11	12	14	16	17
Pathology	34	37	40	42	46	48	54	55	56
Pediatrics	33	37	41	39	39	42	42	38	37
Pediatric allergy	26	22	35	31	25	22	38	17	23
Pediatric cardiology	36	49	54	52	65	53	54	39	39
Physical medicine	30	35	44	44	50	40	62	59	61
Plastic surgery	13	27	21	16	24	22	20	21	24
Psychiatry	24	25	27	27	29	29	28	27	27
Radiology	17	17	18	18	20	20	19	21	27
Surgery	27	30	32	35	36	37	39	38	38
Thoracic surgery	30	37	38	38	43	44	39	43	36
Urology	16	19	23	24	24	25	28	25	22
Total	24	26	29	30	32	32	33	32	32

[1] Excluding Canadians.

[2] This table includes residents in hospital positions only. In 1972, for example, there were another 31 foreign graduates in residencies outside hospitals, notably in General Preventive Medicine. 1969 figures are not available.

Source: Graduate Medical Education, *Journal of the American Medical Association*, or *Directory of Approved Internships and Residencies*, selected years.

The pattern of residencies by specialty also has shown consistent differences over the last decade in the relative distributions of U.S. and foreign-trained graduates, taking all types of hospitals together (Table 29). FMGs as hospital residents appear to be concentrated in certain specialties. The reasons for this are complex, and appear to center on such factors as residual placement of FMGs in hospital positions (once all possible vacancies have been filled by USMGs) and special requirements for Board certification (27, p. 39).

This analysis is based on an implied comparison of the representation of FMG residents in specialties compared with the representation of U.S. residents in those same specialties. The proportion of FMG residents in specialties out of the total number of FMG residents indicates that the majority of FMGs in fact elect graduate training in one of the five major specialties (Table 30). Of 14,100 FMG residents (including Canadians) in 1970, over 7,400 were in internal medicine, general surgery, pediatrics, obstetrics and gynecology,

or psychiatry. Thus, although FMGs fill residency vacancies in specialties not taken by USMGs, many FMGs are still obtaining residency training in the major specialties preferred by USMGs.

Table 30
TOTAL RESIDENTS AND FOREIGN MEDICAL GRADUATES IN RESIDENCIES, BY SPECIALTY: 1970

Specialty	Total residents	Foreign medical graduates [1] in residencies	
		Number	Percent of total residents
Total	39,779	14,123	36
General practice	876	296	34
Allergy	61	14	23
Cardiovascular diseases	568	276	49
Dermatology	556	85	15
Gastroenterology	221	112	51
Internal medicine	6,568	2,050	31
Pediatrics	2,567	1,052	41
Pediatric allergy	43	19	44
Pediatric cardiology	68	41	60
Pulmonary disease	201	107	53
General surgery	5,899	2,287	39
Neurological surgery	520	145	28
Obstetrics and gynecology	2,384	1,004	42
Ophthalmology	1,334	146	11
Orthopedic surgery	1,834	264	14
Otolaryngology	814	153	19
Plastic surgery	256	72	28
Colon and rectal surgery	22	14	64
Thoracic surgery	199	94	47
Urology	832	227	27
Aviation medicine	74	6	8
Anesthesiology	1,408	758	54
Child psychiatry	315	98	31
Diagnostic roentgenology	516	87	17
Forensic pathology	10	3	30
Neurology	696	222	32
Occupational medicine	16	2	12
Psychiatry	3,278	1,015	31
Pathology	2,103	1,083	51
General preventive medicine	44	3	7
Physical medicine and rehabilitation	236	157	67
Public health	96	6	6
Radiology	2,057	480	23
Therapeutic radiology	203	58	29
Other Unspecified	2,904	1,687	58

[1] Including Canadians.
Source: References 1 and 19.

Geographical Area Foreign medical graduates in graduate medical education are not distributed evenly by geographic location. Of the 14,440 residency positions filled in 1972 by FMGs (excluding Canadians), 5,835 (or 40 percent) were in the Middle Atlantic States of New York, New Jersey, and Pennsylvania (Appendix Table 7). The Middle Atlantic States also lead in the number of positions offered (13,057 of 51,115, or 26 percent) and positions filled (11,882 of 44,858, or 26 percent).

New York leads all other States in numbers of foreign-trained residents as it does in the number of foreign-trained physicians as a whole. In terms of the relative proportion of foreign-trained residents, however, New Jersey is the outstanding State; in 1972, foreign medical graduates constituted 78 percent of all hospital residents.

Among other "high" States on percentage of FMGs in filled residency positions were Delaware, Rhode Island, Illinois, and West Virginia. In these States, hospitals are substantially dependent on foreign medical graduates. At the other end of the scale are States with relatively few foreign-trained residents compared with the number of American and Canadian graduates, including Arkansas, Colorado, Mississippi, and Utah. Internships tend to follow a similar pattern, and in some regions the differences are even more marked. The percentage of foreign graduates in filled internship positions was higher than the percentage in filled residency positions in the New England, Middle Atlantic, East North Central, South Atlantic, and Mountain States (22, pp. 925, 931).

Country of Medical Education Among foreign-trained physicians serving in U.S. graduate training programs in 1972, about one-third were educated in India (18 percent) and in the Philippines (14 percent). Korea, Taiwan, Thailand, Iran, and Pakistan together contributed another 23 percent. At least 2 percent of the total number of foreign trainees were educated in each of the following countries: Spain, Mexico, Italy, Argentina, and Egypt (UAR). Foreign graduates from Asia represented the largest group (64 percent of those in training programs); 16 percent were educated in the Americas; 16 percent in Europe; 3 percent in Africa; and under 1 percent in Oceania (22, p. 939). The reader is reminded that graduates of Canadian schools are not included in these AMA tabulations.

Performance of FMGs

As the FMG population in the United States has grown, so has interest in the group's medical proficiency. Despite this interest, few direct measures of performance have been developed which indicate, under controlled conditions, the relative medical ability of USMGs and FMGs. A number of statistics are available from which reasonable, albeit generalized, inferences concerning the relative performance of U.S. and foreign-trained physicians have been drawn. Most of these data refer only to performance on examinations and should not be extrapolated to expected performance in the clinical setting. Other information is available on specialty board certification and on more subjective evaluations.

ECFMG Performance

One basis for analyzing FMG performance is the examination of the Educational Council for Foreign Medical Graduates (ECFMG). By 1973, over 178,320 foreign-trained physicians had taken a total of 315,885 examinations, and some 119,800 had eventually passed it (Table 31). As noted earlier, the medical part of the examination is based on questions from Parts I and II of the National Board of Medical Examiners, and thus is directly related to material covered by U.S. medical students or recently graduated physicians. FMGs sitting for the examination, however, have graduated from medical school over a wide range of years. The actual distribution of FMG test scores and expected distribution of USMG test scores for the February 1969 examination are shown in Table 32. Scores ranging from 75 (passing) to 90+ included only 38 percent of the FMGs but would take in approximately 99 percent of the U.S. medical students. Furthermore, FMG scores tend to be concentrated at the minimal pass level of 75; raising the standard to 80, for example (27), would eliminate, at least at the outset, from one-half to two-thirds of those FMGs who have passed, compared with only about one-fifth of the expected U.S. distribution on the same examination (Table 32). It should be emphasized that these figures, although suggestive of a marked differential between foreign and U.S. graduates, are not a direct measure of relative performance. The AMA has taken the position that "recipients of such certification have medical knowledge at least comparable to the minimum expected of graduates of approved medical schools in the United States and Canada" (28).

Each year about 38 percent of the ECFMG candidates score 75 or more and thereby become eligible for certification, although the percent passing reached its lowest point ever in 1971 (Table 31). This overall average obscures the wide variation in pass rates among countries and medical schools within countries. Since 1968, the ECFMG has recorded the total number of FMGs from each medical school who sit for the examination and the number who pass or fail.

Table 31
EXAMINATIONS GIVEN BY THE EDUCATIONAL COUNCIL FOR FOREIGN MEDICAL GRADUATES: 1958-73

Year	First examination	Repeat examination	Total examinations	Number passing	Percent passing
Total	178,325	137,560	315,885	119,802	38
1958	1,094	48	1,142	570	50
1959	4,477	363	4,840	2,139	44
1960	11,301	3,467	14,768	5,773	39
1961	8,204	6,018	14,222	5,381	38
1962	8,906	5,629	14,535	6,054	42
1963	11,391	7,739	19,130	6,043	32
1964	9,378	9,133	18,511	6,820	37
1965	9,204	9,133	18,337	7,724	42
1966	10,765	8,223	18,988	7,842	41
1967	11,777	7,411	19,188	8,820	46
1968	11,975	7,573	19,548	7,774	40
1969	12,447	10,151	22,598	8,127	36
1970	16,631	13,319	29,950	11,916	40
1971	16,525	14,508	31,033	9,693	31
1972	15,556	16,516	32,072	12,837	40
1973	18,694	18,329	37,023	12,289	33

Source: Annual Report, 1972. Philadelphia: Educational Council for Foreign Medical Graduates. Federation of State Medical Boards of the United States, Inc., Reports. February 1974.

Appendix Table 8 gives the pass rates on the ECFMG examination by country of medical education for three recent years. A high percentage of FMGs educated in English-speaking countries, where clinical methods of medical education are used, were successful on the examination. FMGs trained in developed countries other than English-speaking ones were also more successful, although Eastern European countries tended to fall somewhat low on the scale. FMGs trained in medical schools located in developing countries where teaching was in a language other than English are notably less successful.

Table 32
PERCENTAGE DISTRIBUTION OF PERSONS TAKING ECFMG EXAMINATION, BY RANGE OF SCORES AND COUNTRY OF GRADUATION: 1969

Range of scores	Actual distribution of foreign medical graduates		Expected distribution of graduates of U.S. medical schools	
	Percent	Cumulative	Percent	Cumulative
90 or higher	0	0	4.6	4.6
85 to 89	2.1	2.1	28.9	33.5
80 to 84	10.2	12.3	46.1	79.6
75 to 79 [1]	25.7	38.0	19.5	99.1
70 to 74	27.2	65.2	0.9	100.0
65 to 69	24.2	89.4	0	–
60 to 64	9.0	98.4	0	–
Below 60	1.6	100.0	0	–

[1] Passing score is 75.
Source: Reference 17.

A special count is made of U.S. citizens sitting for the examination in those foreign countries where they are enrolled in medical school. The U.S. -born FMGs do not appear to be any more successful on the ECFMG examination than the FMG group as a whole (7). For example, on the 1972 examination, the entire group had a pass rate of 40 percent; U.S. citizens alone had a rate of 36 percent. (Of those U.S. -born FMGs educated in English-speaking countries, however, 73 percent passed in 1972, although this is based on only a very small number of examinations.) The pass rates for all candidates in several selected countries where relatively high numbers of U.S. citizens are educated vary over a wide range, e.g., Spain, 23 percent; Mexico, 28 percent; Italy, 34 percent; Belgium, 59 percent; and Switzerland, 82 percent.

A number of caveats must be recognized in interpreting these figures. Aptitudes and medical qualifications of graduates from an individual foreign medical school vary considerably, as does the percentage of the graduating classes from foreign medical schools that sit for the examination. Furthermore, it is not always known whether the best qualified graduates elect (or are permitted) to sit. National policies and the entire professional and political environment can have a significant effect in this area. Finally, successful performance on the examination depends on the ability to cope with both the English language and objective (multiple-choice) questions.

Licensure Table 33 gives a clear indication of how the percentage of new licentiates from foreign schools has risen over the years. Two decades ago, FMGs represented only 10 percent of all new licentiates; by 1972, this percentage has more than quadrupled (to 46 percent), while the total number of new licentiates has doubled in that same interval. U.S. -born FMGs as new licentiates have numbered between 468 and 198 in the 16 years for which statistics are available. The proportion of U.S. -born FMGs, out of the total number of newly-licensed FMGs representing additions to the medical profession, has steadily decreased, however, from a high of 31 percent in 1961 to 13 percent in 1967 and 4 percent in 1972.

Table 33
NEW LICENTIATES REPRESENTING ADDITIONS TO THE MEDICAL PROFESSION, BY COUNTRY OF GRADUATION: 1950-72

New licentiates representing additions to medical professions

Year	Total	U.S. and Canadian	Foreign medical graduates		Foreign medical graduates as percent of total
			Total	U.S. born	
1950	6,002	5,694	308	N.A.	5.1
1951	6,273	5,823	450	N.A.	7.2
1952	6,885	6,316	569	N.A.	8.3
1953	7,276	6,591	685	N.A.	9.4
1954	7,917	7,145	772	N.A.	9.8
1955	7,737	6,830	907	N.A.	11.7
1956	7,463	6,611	852	N.A.	11.4
1957	7,455	6,441	1,014	212	13.6
1958	7,809	6,643	1,166	284	14.9
1959	8,269	6,643	1,626	366	19.7
1960	8,030	6,611	1,419	386	17.7
1961	8,023	6,443	1,580	468	19.7
1962	8,005	6,648	1,357	201	17.0
1963	8,283	6,832	1,451	395	17.5
1964	7,911	6,605	1,306	200	16.5
1965	9,147	7,619	1,528	411	16.7
1966	8,851	7,217	1,634	252	18.5
1967	9,424	7,267	2,157	279	22.9
1968	9,766	7,581	2,185	235	22.4
1969	9,978	7,671	2,307	179	23.1
1970	11,032	8,016	3,016	198	27.3
1971	12,257	7,943	4,314	210	35.2
1972	14,476	7,815	6,661	240	46.0

Source: References 8 and 22.

Work by Knobel indicates that FMGs educated in the more highly developed countries are more likely to sit for State licensure examinations than are FMGs educated in most of the developing world (29). This used to be especially true with regard to FMGs from the Far East, in that a substantial fraction of that subgroup did not elect or were not able to sit. This is apparently changing, however, because the number of licensed physicians from Korea, the Philippines, and Thailand (among the several Far Eastern countries) is beginning to increase dramatically (11, p. 16).

The discrepancy between the requirements for licensure which must be met by the FMG and USMG should be emphasized (30). Over half the States have special requirements for FMGs over and above the usual (but not universal) procedures such as written examinations, certification by the ECFMG, and internship training; and these various prerequisites and regulations differ widely among the States. In 1972, six States still listed U.S. citizenship as a requirement for permanent licensure of physicians trained in countries outside the United States or Canada, six required an immigrant visa, and another 26 required a declaration of intent to become a U.S. citizen (8, p. 55). Furthermore, the requirements may differ depending on whether the FMG is applying for temporary or permanent licensure. The practical result of all these special requirements has been to restrict the geographic mobility of the FMG in comparison with his USMG counterpart, or at least of that portion of the FMG group which desires to be licensed.

The State licensure examination is the first point at which FMGs and USMGs are tested with the same instrument. Between 1964 and 1972, over 49,900 State licensure examinations were administered to FMGs (Table 34, Appendix Table 9), many for the second or third time. Over 32,000 successful examinations were recorded. This constitutes an overall pass rate of 64 percent, which is considerably lower than the USMG pass rate (about 94 percent) for the same period. Use of the FLEX examination among virtually all States in the Union has made it possible to provide a basis of comparison of performance almost nationwide (31). A recent report, however, indicates that FMGs now comprise close to 75 percent of the candidates for licensure in States using FLEX (31, p. 53). Furthermore, FMGs taking the complete FLEX examination between June 1968 and December 1972 are reported to have had a pass rate of just under 50 percent, compared to a pass rate of about 85 percent for USMGs (31, p. 53).

Statistics show that, as aggregate populations, USMGs perform significantly better on the licensure examinations than FMGs, but the aggregate pass rates gloss over a conglomeration of different licensing prerequisites, regulations, procedures, and pass rates among the various States. Appendix Table 9 presents data for 1964 through 1972 on State licensure examinations taken by FMGs, showing the total number of examinations taken (by State) and the number passed. The percent pass rates are given for each year; summary data for the entire period are in Table 34. It would appear that the pass rate for FMGs has not changed much in the interval, having been 68 percent in 1964 and 64 percent in 1972. Pass percentages from year to year in most States tended to be fairly consistent (with some exceptions, including California, the District of Columbia, Indiana, Massachusetts, New Mexico, North Carolina, and West Virginia). States giving the largest number of examinations include New York, Pennsylvania, Florida, Illinois, New Jersey, Virginia, and California. Each of these States passed (and presumably licensed) over 1,500 FMGs between 1964 and 1972 (and New York and Pennsylvania presumably over 4,000), but their pass rate differed considerably (ranging, for example, from 50 percent in Illinois to 90 percent in Florida). These wide variations in pass rates are fairly constant throughout the State listing and are not completely explained by the quality of the candidates sitting in any one State or by the number of FMGs sitting for the examination.

Table 35 gives a more detailed review of the 1972 licensure statistics, showing that U.S. and Canadian graduates fared better on licensure examinations than foreign graduates. In the aggregate, 89 percent of the USMGs passed State board examinations in 1972, compared with 86 percent of the Canadian graduates and 64 percent of the other FMGs. The only exceptions to this were the following States, in which FMGs did roughly as well as, or better than, the USMG group: Georgia, Hawaii, Illinois, Michigan, New Jersey, Oklahoma, South Dakota, Tennessee, Wisconsin, Wyoming, and Puerto Rico.

Certain States administered examinations to far greater numbers of FMGs than USMGs, the most notable being the District of Columbia, Illinois, New Jersey, Pennsylvania, and Virginia. Four States administered licensure examinations only to FMGs: Alaska, Connecticut, New Hampshire, and North Dakota. Because of a reporting discrepancy, data on New York for 1972 are missing, but over recent years, that State has also administered more examinations to FMGs than USMGs.

Table 34
FOREIGN MEDICAL GRADUATES [1]
EXAMINED FOR LICENSURE, BY STATE:
1964-72

State	1964-72 examinations		
	Total	Pass	Percent
Total [2]	49,945	32,031	64
Alabama	26	20	77
Alaska	37	32	86
Arizona	253	176	70
Arkansas	25	18	72
California	2,641	1,596	60
Colorado	91	81	89
Connecticut	707	468	66
Delaware	245	167	68
District of Columbia	1,044	878	84
Florida	3,584	2,315	65
Georgia	403	388	96
Hawaii	165	121	73
Idaho	12	11	92
Illinois	4,206	2,111	50
Indiana	1,493	729	49
Iowa	260	243	93
Kansas	266	237	89
Kentucky	396	323	82
Louisiana	238	178	75
Maine	1,187	691	58
Maryland	2,199	1,299	59
Massachusetts	922	552	60
Michigan	1,274	1,033	81
Minnesota [2]	266	205	77
Mississippi	109	95	87
Missouri	1,541	1,170	76
Montana	57	44	77
Nebraska	22	15	68
Nevada	14	8	57
New Hampshire	448	332	74
New Jersey	2,707	1,753	65
New Mexico	217	120	55
New York [2]	7,292	3,432	47
North Carolina	315	194	62
North Dakota	245	214	87
Ohio	1,594	946	59
Oklahoma	59	52	88
Oregon	57	45	79
Pennsylvania	4,888	4,182	86
Rhode Island	215	156	73
South Carolina	26	21	81
South Dakota	75	67	89
Tennessee	112	112	100
Texas	960	772	80
Utah	65	55	85
Vermont	1,341	735	55
Virginia	3,259	1,709	52
Washington	664	550	83
West Virginia	435	232	53
Wisconsin	607	534	88
Wyoming	14	7	50
Puerto Rico, Virgin Islands, Canal Zone	677	607	90

[1] Excluding Canadians.

[2] Data were not given or were incomplete for 1972, so figures include only 1964-71. The total includes 1964-71 data for New York and Minnesota and 1964-72 for all other States.

Source: Appendix Table 8.

Table 35
PHYSICIANS EXAMINED FOR LICENSURE, BY STATE OF EXAMINATION AND COUNTRY OF GRADUATION:
1972

State	U.S. medical graduates			Foreign medical graduates [1]			Canadian foreign medical graduates		
	Total	Pass	Percent	Total	Pass	Percent	Total	Pass	Percent
Total	4,840	4,260	89	9,113	5,815	64	105	90	86
Alabama	6	6	100	2	0	0	0	0	–
Alaska	0	0	–	4	3	75	0	0	–
Arizona	13	13	100	40	22	55	0	0	–
Arkansas	109	102	94	14	10	71	0	0	–
California	210	195	93	661	321	49	39	35	90
Colorado	4	4	100	3	2	67	1	1	100
Connecticut	0	0	–	16	8	50	0	0	–
Delaware	7	6	86	96	60	63	0	0	–
District of Columbia	14	14	100	215	215	100	1	1	100
Florida	998	688	69	1,077	513	48	19	12	63
Georgia	422	422	100	155	155	100	0	0	–
Hawaii	26	18	69	30	20	67	3	3	100
Idaho	2	1	50	2	2	100	0	0	–
Illinois	26	16	62	1,288	780	61	7	6	86
Indiana	209	208	99	178	55	31	0	0	–
Iowa	261	261	100	84	74	88	3	3	100
Kansas	95	93	98	96	83	86	1	1	100
Kentucky	148	148	100	63	63	100	1	1	100
Louisiana	267	239	90	54	32	59	1	1	100
Maine	1	1	100	90	90	100	0	0	–
Maryland	88	81	92	365	186	51	1	1	100
Massachusetts	5	5	100	214	135	63	2	2	100
Michigan	120	118	98	247	247	100	13	13	100
Minnesota [2]	18	18	100	0	0	–	0	0	–
Mississippi	106	103	97	9	6	67	1	1	100
Missouri	199	167	84	461	278	60	0	0	–
Montana	3	3	100	13	2	15	0	0	–
Nebraska	98	91	93	9	5	56	0	0	–
Nevada	1	1	100	8	4	50	0	0	–
New Hampshire	0	0	–	23	15	65	0	0	–
New Jersey	3	3	100	253	253	100	0	0	–
New Mexico	6	5	83	51	32	63	0	0	–
New York [3]	0	0	–	0	0	–	0	0	–
North Carolina	147	140	95	102	53	52	1	1	100
North Dakota	0	0	–	80	70	88	0	0	–
Ohio	206	190	92	472	248	53	1	1	100
Oklahoma	70	70	100	17	17	100	1	1	100
Oregon	5	2	40	8	2	25	0	0	–
Pennsylvania	18	10	56	844	634	75	2	1	50

(Continued)

Table 35 (Continued)

State	U.S. medical graduates			Foreign medical graduates [1]			Canadian foreign medical graduates		
	Total	Pass	Percent	Total	Pass	Percent	Total	Pass	Percent
Rhode Island	1	1	100	21	18	86	0	0	–
South Carolina	21	21	100	0	0	–	1	1	100
South Dakota	16	16	100	20	19	95	0	0	–
Tennessee	197	196	99	53	53	100	0	0	–
Texas	407	352	86	159	100	63	1	1	100
Utah	10	9	90	3	2	67	0	0	–
Vermont	4	4	100	329	180	55	0	0	–
Virginia	92	89	97	826	455	55	0	0	–
Washington	8	7	88	71	65	92	4	3	75
West Virginia	30	25	83	96	45	47	0	0	–
Wisconsin	56	55	98	68	65	96	0	0	–
Wyoming	1	1	100	2	2	100	0	0	–
Puerto Rico, Guam, Canal Zone	44	42	95	121	116	96	1	0	–

[1] Excluding Canadians.
[2] Incomplete - summary report only.
[3] Only totals given for New York. Total = 2,270, Pass = 895, Percent = 39.4.
Source: Reference 8.

Results on State licensure examinations in 1972 also vary by country and region of origin (in this case medical education), as shown in Table 36 and Appendix Table 10. The Americas (excluding Canada) have the lowest pass rate (59 percent); Oceania (in this case just Australia and New Zealand) the highest (90 percent). Europe, Asia, and Africa have rates of 71, 66, and 64 percent, respectively. These overall pass rates by region obscure wide variations among the several countries within each region, however (Appendix Table 10). The most notable distinction among the various FMG populations is that those educated in English-speaking countries have a pass rate materially superior to that of the other groups. (Earlier research by John Kosa had also shown that FMGs from English-speaking countries acquired medical credentials at rates closer to that of USMGs than did FMGs from non-English-speaking countries [32]). The country-by-country breakdown lends credence to the statement above that FMGs trained in the English-speaking countries do much better than the norm on these examinations. On the other hand, those foreign countries with large enrollments of U.S. citizens in medical schools (e.g., Switzerland, Mexico, or Italy) do not on the whole have a pass rate superior to the overall norm.

Table 36
FOREIGN MEDICAL GRADUATES EXAMINED FOR LICENSURE, BY REGION OF GRADUATION: 1972

Region of graduation	Total examinations	Passed	Percent passed
Total	9,113	5,817	64
Europe	1,394	916	66
Americas	1,472	863	59
Asia	5,955	3,824	64
Africa	250	174	70
Oceania	42	38	90

Source: Appendix Table 10.

Table 37
FOREIGN MEDICAL GRADUATES IN THE UNITED STATES BY COUNTRY OF GRADUATION AND SPECIALTY BOARD CERTIFICATION: 1970

Country of graduation	Total foreign medical [1] graduates	Board certified	Percent Percent
Total	57,217	9,247	16
Europe	24,756	5,444	22
Austria	1,698	417	25
Belgium	511	108	21
Bulgaria	49	9	18
Czechoslovakia	654	95	15
Denmark	82	22	27
East Germany	745	163	22
Finland	31	6	19
France	685	186	27
Germany	3,502	797	23
Greece	813	177	22
Hungary	862	233	27
Iceland	42	5	12
Ireland	924	224	24
Italy	3,208	621	19
Malta	6	0	–
Netherlands	726	220	30
Norway	44	21	48
Poland	602	74	12
Portugal	107	25	23
Romania	317	49	15
Spain	1,801	197	11
Sweden	54	9	17
Switzerland	2,510	784	31
Turkey	866	124	14
USSR	871	90	10
United Kingdom	2,641	728	28
Yugoslavia	405	60	15
Americas	9,929	1,231	12
Argentina	1,313	208	16
Bolivia	146	10	7
Brazil	377	52	14
Chile	176	15	9
Colombia	952	145	15
Costa Rica	11	0	–
Cuba	2,757	345	13
Dominican Republic	629	60	10
Ecuador	147	17	12
El Salvador	91	2	2
Guatemala	109	15	14
Haiti	329	50	15
Honduras	49	3	6
Jamaica	46	5	11
Mexico	1,821	199	11
Nicaragua	78	9	12
Panama	23	1	4
Paraguay	76	6	8
Peru	618	80	13
Surinam	2	0	–
Uruguay	46	5	11
Venezuela	133	4	3
Asia	21,002	2,257	11
Afghanistan	19	1	5
Burma	98	6	6
Ceylon	93	1	1
China	589	197	33
Hong Kong	105	19	18
India	3,957	363	9
Indonesia	89	0	–
Iran	1,631	284	17
Iraq	188	40	21
Israel	214	34	16
Japan	882	97	11
Lebanon	615	205	33
Malaysia	1	0	–
North Korea	5	1	20
North Vietnam	3	0	–
Pakistan	784	65	8
Philippines	7,352	586	8
Singapore	23	2	9
South Korea	2,095	176	8
South Vietnam	12	0	–
Syria	173	18	10
Taiwan	976	84	9
Thailand	1,098	78	7
Africa	1,126	253	22
Algeria	1	0	–
Congo (Kinshasa)	1	0	–
Egypt (UAR)	732	144	20
Ethiopia	1	0	–
Nigeria	24	0	–
Rhodesia	1	0	–
Senegal	1	0	–
South Africa	356	109	31
Sudan	2	0	–
Uganda	7	0	–
Oceania	404	62	15
Australia	325	48	15
New Zealand	79	14	18

[1] Excluding Canadians.
Source: Reference 1.

Specialty Board Certification

FMGs have been significantly less successful in qualifying for specialty board certification than their USMG peers. How much this is an indication of relative medical proficiency and how much an artifact of specialty board examination structure and requirements is not clear. The process of certification by American specialty boards is somewhat complex. Each of the 22 nationally recognized boards operates autonomously and sets its own standards, procedures, and requirements. These requirements may and usually do include the M.D. degree (or equivalent), a specified number of years of postgraduate training and other experience, a written and an oral examination, and (sometimes) citizenship. Although the policies of specialty boards have become more liberal with respect to FMGs in recent years, it should be recognized that the lengthy training and practical experience requirements probably reduced the number of FMGs becoming board certified in the past.

In any case, 16 percent of all FMGs (excluding Canadians) were certified by specialty boards as of 1970 (Table 37), compared to 41 percent of all USMGs (1, p. 11). The proportions of FMGs from Europe and Africa (22 percent each) holding specialty board certification were higher than for all FMGs; the proportions of FMGs from Oceania, the Americas, and Asia were lower (15, 12, and 11 percent, respectively). These regional percentages mask wide variations among the countries, however, as can be seen in Table 37. When just those presumed eligible for certification are compared (i.e., those in activities other than training), 23 percent of the FMGs and 43 percent of the USMGs were board certified as of 1970. This represents an increase in the proportion of both FMGs (excluding Canadians) (21 percent) and USMGs (39 percent) who were board certified as of 1967 (33, pp. 15, 24-25).

Board certification is not spread evenly throughout the FMG population, as Table 37 indicates. Graduates trained in medical schools of English-speaking countries (Australia, New Zealand, South Africa, and the United Kingdom) show a much higher percentage of board certification (26 percent) than the FMG population as a whole (16 percent) or the non-English-speaking countries alone (15.5 percent) (Table 38). This group constitutes only a small fraction (6 percent) of the total FMG population, however, and of the FMG population that is board certified (10 percent).

With regard to specialty certification, it is important to note that three of every ten FMGs are still interns or residents. Under most circumstances, these FMGs would thus not be eligible for specialty board certification, since most boards require completion of residency training and a number of years of specialty experience before candidates are considered eligible for certification. Eligibility is thus somewhat a function of age. As noted earlier, a higher percent of FMGs than USMGs are in the younger age groups; they have come to the U.S. early in their careers, are often still in the training phase of their careers, and have not been in the United States long enough to be able to sit for the examination.

Table 38
FOREIGN MEDICAL GRADUATES IN THE UNITED STATES, BY LANGUAGE GROUP AND SPECIALTY BOARD CERTIFICATION: 1970

Language group	Total foreign medical graduates [1]	Board certified	Percent
Total	57,217	9,247	16
English speaking	3,401	899	26
Australia	325	48	15
New Zealand	79	14	18
South Africa	356	109	31
United Kingdom	2,641	728	28
Non-English speaking	53,816	8,348	16

[1] Excluding Canadians.
Source: Reference 1.

Changes in the timing of certification, such as new examination structures which enable both USMGs and FMGs to take the boards earlier in their careers, should improve the FMGs' chances of becoming board certified.

Data (as of 1972) with regard to specialty board certification are presented in Table 39; in all, just over 11 percent of all certifications were held by FMGs. As can readily be seen, certain patterns of specialty choice by FMGs (including Canadians) are borne out; in particular, a relatively high representation of FMGs in physical medicine, pathology, and anaesthesiology is reflected in these figures. The proportion of FMGs (including Canadians) was notably higher in 1972 than in 1967 for several specialties, including colon and rectal surgery, urology, internal medicine, surgery, thoracic surgery, and pediatrics; it was the same in both years in ophthalmology, otolaryngology, and psychiatry, and dropped in dermatology and physical medicine.

The American Board of Medical Specialties recently collected some information from several of its member boards on performance on the written examinations for specialty board certification. Eleven boards reported for

Table 39
NUMBER OF SPECIALTY BOARD CERTIFICATION, BY BOARD AND COUNTRY OF MEDICAL EDUCATION: 1972

Specialty board	Total board certifications [1]	Graduates of U.S. medical schools	Graduates of foreign medical schools			Foreign graduates as a percent of all board certifications [2]
			Canadian	Other	Total	
All boards	135,468	120,195	2,690	12,583	15,273	11.3
Anesthesiology	5,093	4,050	165	878	1,043	20.5
Colon and rectal surgery	388	327	16	45	61	15.7
Dermatology	2,656	2,453	48	155	203	7.6
Family practice	4,520	4,239	55	226	281	6.2
Internal medicine	22,737	21,245	277	1,215	1,492	6.6
Neurological surgery	1,487	1,311	45	131	176	11.8
Nuclear medicine	884	760	20	104	124	14.0
Obstetrics and gynecology	11,331	10,300	221	810	1,031	9.1
Ophthalmology	6,655	6,148	145	362	507	7.6
Orthopedic surgery	6,927	6,364	164	399	563	8.1
Otolaryngology	4,590	4,158	127	305	432	9.4
Pathology	7,396	5,634	197	1,565	1,762	23.8
Pediatrics	13,101	11,101	221	1,779	2,000	15.3
Physical medicine and rehabilitation	803	584	17	202	219	27.3
Plastic surgery	1,032	936	21	75	96	9.3
Preventive medicine	2,186	2,051	51	84	135	6.2
Psychiatry and neurology	10,514	8,919	328	1,267	1,595	15.2
Radiology	9,853	8,671	181	1,001	1,182	12.0
Surgery	17,020	15,312	286	1,422	1,708	10.0
Thoracic surgery	2,580	2,205	43	332	375	14.5
Urology	3,715	3,427	62	226	288	7.8

[1] This does not represent individual physicians, as some physicians may hold more than one certification.

[2] Including Canadians.

Source: Reference 22.

1972 the number of FMGs and U.S./Canadian graduates taking the written examinations for the first time. Ten boards reported only 1972 examinations; one board reported only a five-year total. For FMGs, a 63 percent failure rate was calculated; the failure rate on individual boards ranged from 18 to 73 percent. One board indicated that of foreign-trained physicians taking its examination after one or more failures, 225 FMGs failed and 84 passed, for a 73 percent failure rate. For USMGs (including Canadians), the failure rate calculated for 1972 for first-time examinations was 27 percent; their failure rate on individual boards ranged from 5 to 30 percent.

Up to this point, comparative FMG and USMG performance has been inferred after the fact from records of performance on examinations. The following discussion will deal with the attitudes and perceptions of the FMGs and USMGs themselves. These perceptions have been recorded in a series of research projects conducted during the 1960s. They add a valuable dimension to the limited knowledge that we have concerning the capabilities and motivations of the FMG population.

Perceptual Studies of FMG Performance

Two research projects conducted during the mid-1960s have compared the performance of FMGs and USMGs while they were serving as residents. One study involved FMGs and USMGs serving in surgery, internal medicine, and physical medicine and rehabilitation residencies in university-affiliated hospital programs

located primarily in the Northeast. Approximately 50 FMGs and 50 USMGs in each specialty were included in the sample. In one paper on this project, Halberstam and Dasco reported on the performance and ability of U.S. and foreign-trained residents as perceived by both the members of the sample group and U.S. medical educators. The overall proficiency of U.S.-trained residents was considered superior to that of foreign-trained residents by 90 percent of the U.S. residents and 78 percent of the foreign-trained. The medical educators also perceived the USMGs to be better trained and better able to cope with the requirements of residency training than the FMGs (34).

Another paper compared the attitudes and performance of 100 internal medicine residents, split evenly between USMGs and FMGs (35). Those FMGs who were more satisfied with their residency training programs tended to have closer contacts with U.S. peers, fewer contacts with compatriot peers, and less attachment to their home countries. Satisfaction with the program also seemed to be positively correlated with ECFMG examination scores. The FMGs generally conceded the professional superiority of their USMG peers, a perception shared by the teaching program supervisors.

In still another paper, the personality profiles of FMG residents in surgery were compared with the profiles of a number of other medical resident and normative groups, including USMG residents, FMG residents, U.S. college men, and U.S. top and second-level executives (36). The study indicated that FMG residents in surgery showed the same personality profile as U.S. medical residents and second-level executives, and concluded that the foreign surgeon appears to be more readily accepted as a physician in the United States than is his foreign colleague in internal medicine or physical medicine and rehabilitation.

The other major research effort dealing with perceptions of FMG performance was conducted by Margulies, Bloch, and Cholko (37). Medical educators' perceptions of the comparative performance of U.S. and foreign-trained house officers were measured on 166 pairs of U.S. and foreign-trained house officers and 130 additional FMGs in terms of professional skill, overall competence, and adaptibility. Except for questions dealing with personal characteristics, FMGs were rated significantly lower in competence than their USMG peers. FMGs trained in English-speaking countries were judged to be superior performers to the overall foreign-trained population. The researchers concluded that FMGs represent a level of competence significantly lower than the USMGs in the same program of graduate education. They did not conclude that FMGs were professionally incompetent, although it was suggested that serious consideration be given to allowing only FMGs with clearly demonstrated competence to assume patient care responsibilities.

Both these studies revealed that medical competence was considered lower for FMGs than for USMGs. Although a number of questions can be raised with regard to the general applicability of these studies, the major thrust is clearly that FMGs are perceived, however rightly or wrongly, as having less medical competence, *in the American setting*, than their U.S.-trained colleagues.

U.S. CITIZENS IN MEDICAL SCHOOLS ABROAD: A SPECIAL ASPECT OF THE FMG PICTURE

Background

Applications to U.S. medical schools since World War II have consistently exceeded the number accepted by about two to one (Table 40); despite a relatively rapid increase in the number of places, the excess is expected to increase. In 1972-73 alone, almost 22,380 applicants were turned away from U.S. medical schools. In 1970-71, the figure had been nearly 13,500. The rise in total number of applications has also been notable. In 1967-68, for example, 93,300 applications were received for an average of 5.0 per individual. In 1972-73, about 267,300 applications were received, for an average of 7.4 per individual (22). The percent of total applicants accepted was 38.1, down from a high during the past decade of 58.1 in 1967-68.

Table 40
APPLICATION ACTIVITY TO U.S. MEDICAL SCHOOLS:
1947-48 through 1972-73

Academic year	Number of applicants	Number of applications	Applications per individual	Number of accepted applicants	Ratio of applicants to accepted applicants
1947 - 48 . .	18,820	56,279	3.0	6,512	2.9
1948 - 49 . .	24,242	81,662	3.4	6,973	3.5
1949 - 50 . .	24,434	88,244	3.6	7,150	3.4
1950 - 51 . .	22,279	81,931	3.7	7,254	3.1
1951 - 52 . .	19,920	70,678	3.5	7,663	2.6
1952 - 53 . .	16,763	56,319	3.4	7,778	2.2
1953 - 54 . .	14,678	48,586	3.3	7,756	1.9
1954 - 55 . .	14,538	47,568	3.3	7,878	1.8
1955 - 56 . .	14,937	54,161	3.6	7,969	1.9
1956 - 57 . .	15,917	59,798	3.8	8,263	1.9
1957 - 58 . .	15,791	60,951	3.9	8,302	1.9
1958 - 59 . .	15,170	59,102	3.9	8,366	1.8
1959 - 60 . .	14,952	57,888	3.9	8,512	1.8
1960 - 61 . .	14,397	54,662	3.8	8,550	1.7
1961 - 62 . .	14,381	58,834	3.7	8,682	1.7
1962 - 63 . .	15,847	59,054	3.7	8,959	1.8
1963 - 64 . .	17,668	70,063	4.0	9,063	1.9
1964 - 65 . .	19,168	84,578	4.4	9,043	2.1
1965 - 66 . .	18,703	87,111	4.7	9,012	2.1
1966 - 67 . .	18,250	87,627	4.8	9,123	2.0
1967 - 68 . .	18,724	93,332	5.0	9,702	1.9
1968 - 69 . .	21,117	112,195	5.3	10,092	2.1
1969 - 70 . .	24,465	134,557	5.5	10,514	2.3
1970 - 71 . .	24,987	148,797	6.0	11,500	2.2
1971 - 72 . .	29,172	210,943	7.2	12,335	2.4
1972 - 73 . .	36,135	267,306	7.4	13,757	2.6

Source: Reference 22.

Many U.S. citizens have chosen to seek medical education abroad. In 1971-72, the Institute of International Education estimated that more than 3,710 U.S. citizens were studying medical sciences abroad (22, p. 912). At the end of the 1960s, Americans were thought to be enrolling in foreign medical schools at the rate of about 500 per year (38). It has also been estimated that fewer than one-half of those Americans entering foreign schools actually finish the full course and return to the United States with acceptable credentials (39). The licensing statistics in the United States point to a steady inflow of American graduates of foreign schools ranging between 180 to over 400 (Table 33), and these figures include only those successful in the licensing examinations. In the 16 years for which data are available, over 4,500 initial licenses have been awarded to U.S.-born FMGs, out of a total of 34,595 awarded to all FMGs in the same period.

The figures on students abroad are believed to be underestimates. For example, a recent survey of U.S. medical students at the Autonomous University of Guadalajara indicated that for 1972-73, some 800 had been enrolled in the first year alone (40). In 1971-72, over 600 had been enrolled in the first year class. A survey by the Pan American Health Organization covering the 1971-72 academic year of all foreign students in medical schools in the Americas indicated a total of 1,744 U.S. citizens at Guadalajara alone, out of a total of 1,943 U.S. citizens in Latin America as a whole (and an additional 102 in Canada) (41).

Studies of foreign medical schools by Mason have thrown additional light on the total number of U.S. students in some institutions. In 1969, he found a total of 821 Americans at schools in Italy, the bulk of them at the University of Bologna. He also reviewed schools in Spain, Switzerland, Belgium, and Mexico. In all, he found a total of 2,343 American students in the 16 schools surveyed (38).

A more recent analysis of ECFMG applications from U.S. citizens found a similar predominance of students in Italy (42). Of the 1,165 U.S. candidates taking the ECFMG between September 1968 and February 1970 (including 123 Puerto Ricans), 426 were from medical schools in Italy, another 199 in Spain, 140 in Mexico, and 109 each in West Germany and Belgium. Other countries, particularly in Europe, had smaller numbers of U.S. citizens.

Altogether, 5,972 U.S. -born physicians from foreign schools were identified in the United States in 1970 (1). The bulk of these graduated from schools in Italy, Switzerland, the United Kingdom, Spain, and Mexico. It should be emphasized here that foreign schools refers to medical schools outside both the United States and Canada.

One early study of Americans in medical schools abroad was Greeley's analysis of ECFMG candidates for 1964 (43). Greeley estimated that of the 500-550 Americans abroad at that time, about 300 received degrees and took the ECFMG examination. He reviewed the records of 303 persons who had taken their premedical education in the United States and then had gone abroad for their medical education. The great majority (72 percent) had applied to American medical schools but their performance on the standard Medical College Admissions Test was significantly lower than that of students who were accepted to American medical schools. Of the whole sample, 40 percent had attended schools in Italy, 15 percent in Switzerland, 10 percent in Germany, and 9 percent in Mexico; the remainder were scattered among a variety of countries. Most of the students thus took their medical education in a foreign language. While 57 percent passed the ECFMG examination the first time, Greeley expected at least 70 percent would pass eventually.

The experience of Americans after graduation from foreign medical schools has barely been explored. Mason's profile of 314 successful applicants to State licensing boards is one effort (39). On average, these U.S. -born FMGs spent longer in medical school than if they had attended American schools (5.4 years, and longer for those who had to learn a foreign language). Most were satisfied with the quality of education they received abroad. Some said that clinical training was insufficient, but that this could be compensated by an American internship. Many complaints voiced by individual foreign-trained Americans related to a feeling of discrimination on returning to the United States, in terms of jobs available, licensing, and incorporation into the American medical profession.

COTRANS

The mechanisms for transferring into the U.S. health care system at any point (e.g., in the middle of undergraduate medical education or at the end of training)are not easy. In 1970, the Association of American Medical Colleges established a "coordinated transfer application system" or COTRANS, to assist in evaluation of credentials of U.S. citizens seeking transfer from foreign to U.S. medical schools, basically through participation in Part I of the National Board of Medical Examiners. COTRANS is not a matching or placement service. Transfer applicants must apply to medical schools directly, and acceptance decisions are made by the admissions committee of each school. Under the initial program, no new positions were to be created. Such vacancies as exist in second, third, or fourth year classes of U.S. medical schools are open first to transfers from U.S. two-year schools or other four-year degree programs. Only vacancies existing after those transferees have been accommodated can be filled by COTRANS applicants.

Many schools have been reluctant to admit U.S. -born foreign transfer students because of the difficulty of evaluating their previous performance (44, 45). Between 1960 and 1969, for example, a total of 377 students transferred from foreign into U.S. schools, the majority into the third year (46, pp. 1219-20). In all, 564 COTRANS applicants have been accepted during the first four years of its existence (1970-1973). Preliminary data for 1973 suggest that 1,046 COTRANS applications were approved as eligible for Part I of the National Board. Of the 1,046, a total of 957 participated in Part I of the National Board and 292 passed. Data from the AAMC Fall Enrollment Questionnaires show that 36 of 49 participating medical schools in the U.S. admitted 153 COTRANS students in 1973, compared with 214 the year before (47). Compared with the total number of U.S. citizens in foreign schools, however, these transfers represent only a fraction of the potential number of Americans who might want to be qualified to return to the United States for the remainder of their medical education.

The "Fifth Pathway"

Entering the American system after completion of didactic work abroad is currently a cause of concern and complaint from U.S. foreign medical graduates (48, 49). Before granting eligibility for its certification, the ECFMG generally required that the candidate have completed the curriculum requirements in the country of medical education and also have reached the point in his education where he would be eligible for licensure in that country if he were a citizen. Some countries require students to take an internship there before issuing a license. This internship may correspond to more nearly to the clinical clerkships offered in most U.S. medical schools and, thus, is not an internship in the American sense. Furthermore, U.S. hospitals heretofore have not usually appointed physicians directly into a residency. These factors have often meant that U.S.-born foreign medical graduates, like their foreign-born counterparts, may have to take an additional year of internship or similar training to fulfill all requirements for the Doctor of Medicine degree.

Mexico is a case in point. Graduates of Mexican schools must serve six months to one year of social service as the last part of medical school before being eligible for the medical doctorate degree; only then are they considered truly medical graduates. One year of internship (i.e., clinical clerkship) is also required prior to licensure. Having been forestalled in attempts to circumvent this requirement before being able to take an American internship, six American medical students from the Autonomous University of Guadalajara filed suit charging the AMA, the American Hospital Association (AHA), the ECFMG, and the Joint Commission on the Accreditation of Hospitals (JCAH) with violation of the Sherman and Clayton Anti-Trust Acts (18, p. 23) and alleging interference with their civil rights. They maintained that the ECFMG's policy of requiring foreign-trained physicians to have achieved eligibility for licensure before being admitted to its examination discriminated against U.S. students in Mexico, by forcing them to spend extra time before being able to take a U.S. internship. This in turn, it was alleged, was compounded by policies that effectively penalized hospitals which accept U.S. graduates of foreign medical schools who do not hold ECFMG certification, through loss of accreditation of both the graduate medical education program and the hospital itself. In the intervening period, the suit changed somewhat. Five of six plaintiffs withdrew, and the case against the AMA, the AHA, and the JCAH was dropped. The thrust of the case against the remaining defendent was also modified, and the chief objection appeared to be against the ECFMG requirements that FMGs must meet the requirements for licensure in the country in which they are educated. In October 1973, the remaining action was dismissed in a lengthy legal argument.

The AMA has liberalized the requirements for entrance into graduate medical education for FMGs. As of July 1971, foreign medical graduates are being allowed to substitute a year of supervised clinical training under the direction of a medical school approved by the Liaison Committee on Medical Education for the internship or social service required by a foreign school. This is referred to as the "Fifth Pathway" (50). To gain such a position, the student must have completed premedical undergraduate work in an accredited U.S. college or university of a quality high enough for matriculation in a U.S. medical school. He must also have successfully completed all other formal requirements of the foreign school. Finally, he must pass a screening examination acceptable to the Liaison Committee (such as the ECFMG examination). (He need not obtain ECFMG certification, however.) The National Board of Medical Examiners devised a special examination – the American Medical Screening Examination – as such a test. After successful passage through this supervised academic year, the student is eligible to enter an AMA-approved graduate training program. Twelve U.S. and two Canadian medical schools were participating in this program as of 1972. It should be noted that only 14 States presently permit Fifth Pathway participants to qualify for regular medical licensure, without having fulfilled all the requirements for an ECFMG certificate. The new AMA policy could be seen as a means of giving differential treatment to U.S. citizens graduating from foreign medical schools vis-a-vis foreign nationals graduating from those same schools, and the international implications of this will need to be considered, if the program expands to any great extent.

FUTURE DATA COLLECTION AND ANALYSIS

The limitations in the present data base on FMGs have been emphasized throughout this chapter. To reiterate, the problems of analyzing the FMG component of U.S. physician manpower are centered in several areas: the true magnitude of the net flow of foreign-trained physicians into the U.S. over time; the magnitude and characteristics of that part of the FMG population working in medical or allied fields but not known to the professional or regulatory agencies; the location, professional activities, and professional achievements of the "known" FMG component; and, finally, the quality of the health care services delivered by FMGs.

An improved and extended system for gathering, storing, processing, and analyzing information on FMGs —and similar information on USMGs— is a pressing need. Planning for the use of health resources in the United States and for the use of health manpower in particular — will be less than optimally rational as long as these data are unavailable. Much of the data may not become available any time soon, but the more fruitful areas of inquiry might at least be outlined.

One primary difficulty has been that no single identifying number is in use which would allow an FMG to be followed throughout his stay in the United States, regardless of changes in visa status, activity, location, marital status, and so forth. One solution to this problem may be in the Social Security Amendment of 1972 (P.L. 92-603), which contains a requirement (Section 137) that social security numbers be assigned to (among others) all aliens at the time of their admittance to the U.S. as permanent residents or for employment, and to all other aliens at such time as their status changes to one of the above categories. Implementation of this requirement should facilitate the establishment and maintenance of a single primary source of contact which will be as inclusive as possible.

Aside from the need for an identifying number, the need for research into specific aspects of the FMG issue can be assessed from several vantage points. The items noted below do not by any means exhaust the possible areas for productive research; they are intended to give a topical overview of the situation.

Topics for Data Collection and Research

Demographic and Other Characteristics of FMGs

To promote a more rational process of health manpower planning at both the national and local levels, a more complete and primary source of data on all physicians must be established and maintained. In the case of FMGs, this data base must be expanded beyond the usual items such as age and sex, location, current professional activity, and specialty. An ideal data base on FMGs would also include country of birth; country of last permanent residence; last citizenship; age at entry; visa status upon entry into the U.S.; subsequent changes; and current visa status. In terms of medical education and training, such items as medical school, graduate training abroad, graduate training in the U.S. (in terms of specialty, level, and duration), ECFMG performance, and competency in English are all signficant parameters. Similarly, details of past and present professional activity are important topics, e.g., licensure history, specialty board certification, affiliation (or nonaffiliation) of hospital, and type of practice. Details about specific location within urban areas are also crucial.

One area of particular significance is the economic aspect of the dual USMG/FMG manpower pool. Information on income for U.S.-trained versus foreign-trained physicians by specialty, activity, location, and other parameters is needed. The relative costs of medical education, graduate training, or retraining represents another important topic for research, especially in comparison with similar costs for nonphysician support personnel.

Quality of Care

An issue of overriding concern to professionals and laymen alike has been the quality of health care services delivered by foreign medical graduates, in comparison both with peer-oriented standards and with expectations of consumers. The question has been raised— but not answered— about differences in performance and quality of care delivered. Quality is a subjective concept that is not easily measured, but it can be translated into more precise terminology. The concepts of benefit, effectiveness, or efficiency, for example, are all more workable terms which convey a similar meaning. They are, furthermore, open to quantification — they can be restated in such a way as to allow for a wide range of evaluative actions.

The definition of quality in these (or other) terms can be made from several individual viewpoints – the professional or the consumer, for example – or from a more composite viewpoint – society, for example. Quality can reflect purely technical and unitary measurements, e.g., number of specific services performed per time or manpower unit, or more subjective considerations, e.g., patient satisfaction in terms of time or money expended. In short, quality is a complex concept; it is particularly complicated when applied to foreign physicians, especially in comparing them with U.S.-trained physicians.

With regard to FMGs, two parameters of quality might be isolated for primary attention. The first is the need for measures of professional competence in the direct delivery of care in the American setting, measures sufficiently precise and discriminating that they can be applied equally well to USMGs and FMGs. Second, there is a need for common measures of professional knowledge and achievement – in short, standard examinations and requirements for entry into graduate medical education, licensure, and specialty board certification. FLEX and the screening examination which may be developed by the National Board of Medical Examiners are initial steps in this area. Ways of administering these examinations and collecting data on the group that fails, as well as on the group that passes, will also be fruitful topics of research.

Immigration and Emigration

Aside from the migration information (country of birth, country of last permanent residence, etc.) noted in the section above on demographic characteristics, other information would be useful in clarifying processes and patterns of physician migration. Above all, some measure over time of the number, destination, and various other characteristics of those FMGs who leave the United States is needed.

Motivations for immigration and/or emigration, particularly within the context of the worldwide movement of health professionals, in one aspect of the situation which needs more careful analysis. The expectations of FMGs prior to arrival, their information (or lack of it) about programs and career possibilities, their satisfaction (or lack of it) with training and activities here and in their home countries, and their potential employment opportunities in their home countries are all areas deserving further clarification. These factors can be assessed from the point of view of FMGs who remain in the United States *versus* those who leave the country (and may or may not have returned home). Further exploration of the "pull" factors is needed; for example, are economic or professional considerations paramount? Information on migratory patterns is particularly crucial in beginning to identify which groups of FMGs might be expected to remain in the U.S. and become permanent additions to the physician manpower pool.

Finally, the place of the United States in the worldwide movement of physicians must be studied more closely. The implications of physician migration for the donor countries is one aspect of the constellation of potential topics for research which should not go unattended. One major study by UNITAR which has focused on students and professionals gives many insights into the migration process in general, but it did not include physicians. The proposed study of international migration of physicians and nurses, expected to be undertaken by WHO, should provide additional data and perceptions to describe the patterns of migratory flow among nations and to elucidate the underlying reasons for migration.

Analyses

Research and information exchange do not take place in a vacuum. The purposes to which such efforts are directed should be unambiguously stated; in so doing, the justification for such efforts may highlight the more crucial areas of attention.

The first step in data collection is to identify the population(s) to be included. Although the entire group of FMGs entering, working, and living in the United States is the proper focus of long-term data collection and storage, certain subgroups of FMGs can be isolated for special analysis. These subpopulations comprise the following:

1. FMGs currently known to professional, regulatory, or immigration agencies
   (a) those in unapproved training programs,
   (b) those in activities other than office or hospital practice or graduate medical education;
2. FMGs not yet accounted for or known to those agencies – the so-called "unknown" FMG population;
3. FMGs who enter the United States as nonimmigrants;
4. FMGs who enter the United States directly as permanent residents;
5. FMGs who enter the United States as nonimmigrants but convert to immigrant status;
6. FMGs who leave the United States; and
7. U.S.-born FMGs.

Following are some illustrative issues which could be explored given the types of data outlined above.

In the area of immigration (worldwide or U.S.-oriented), collected data would allow subgroups of FMGs to be compared on a broad set of variables to ascertain what factor or constellation of factors have been most instrumental in motivating FMGs to migrate, to settle in a new land, or to return home, and thus to predict the future behavior of similar groups. This might be particularly pertinent in assessing the possible behavior of exchange visitor FMGs in terms of converting to immigrant status.

Samples of FMGs with recognized credentials of one sort or another (e.g., full State license to practice, passing score on ECFMG examination, or appointment to an approved training program) might be compared with samples of FMGs lacking such credentials, in order to clarify what factors might be operative in creating the so-called FMG "underground". This might, in turn, lead to potential remedial steps to help the FMG underground move to a higher professional level.

With regard to professional achievement, samples of FMGs and USMGs might be compared to ascertain what variables are most strongly associated with differences in licensure, specialty board certification, position in affiliated or nonaffiliated hospitals, or whatever. Related questions involving the issues encompassed in "quality of care" might also be addressed. For example, whether FMGs in a given setting are as effective as USMGs in the delivery of health care might be measured. If the FMGs were found to be less effective, variable(s) which account for this divergence from the USMGs could be isolated.

More needs to be known about U.S.-born FMGs, especially if this group becomes a more noticeable constituent of U.S. physician manpower. Specificially, the demographic, educational, and socio-cultural backgrounds of U.S. citizens educated abroad are of primary interest. Their educational experiences abroad, their entry into graduate medical education in the U.S., and their assimilation into professional life here are other areas open to future research.

The issue of whether the United States has a real or only an apparent shortage of physicians may not be resolved satisfactorily for some time, involving as it does such questions as geographic maldistribution of both USMGs and FMGs. One useful analysis, given the data suggested above, would be on the subject of location of practice of FMGs *within* urban areas in order to clarify whether, in this one instance, FMGs are helping to relieve the lack of health care services to certain inner city or ethnic areas. Similarly, analysis of the location of practice by type of institution and patient treated, especially by the "unknown" FMG component, might help to clarify whether FMGs are filling positions heretofore unrecognized as physician-dependent.

These few examples of possible analyses are given to illustrate the types of questions which might be asked, given a suitable data base. In the absence of that data base, the answers to such questions remain speculative. Informed attempts to improve the U.S. medical training of the FMG, to enhance the quality of care delivered by FMGs, to quantify and characterize more precisely the migratory patterns of FMGs, or to describe more completely the composition of the FMG component of U.S. physician manpower will consequently also remain unrealized.

BLANK PAGE BLANK PAGE

REFERENCES

1. Haug, J.N. and Martin, B. C. *Foreign Medical Graduates in the United States, 1970.* Chicago: American Medical Association, 1971.
2. *Annual Indicator of the Immigration into the United States of Aliens in Professional and Related Occupations. Fiscal Year 1970.* Washington, D.C.: Department of Justice, Immigration and Naturalization Service, June 1971.
3. Public Law 91-225. U.S. Code. *Congressional and Administrative News, No. 4*:570-572, May 5, 1970.
4. Dublin, T.D. The Migration of Physicians to the United States. *New England Journal of Medicine* 286:870-877, 1972.
5. *1972 Annual Report, Immigration and Naturalization Service.* Washington, D.C.: Government Printing Office.
6. Title 29, Subtitle A, Part 60: Immigration; Immigrant Labor Certifications. *Federal Register* 36 (24): 2462-2467, February 4, 1971.
7. *Annual Report, 1970.* Philadelphia: Educational Council for Foreign Medical Graduates.
8. *Medical Licensure Statistics for 1972.* Chicago: American Medical Association, 1973.
9. Margulies, H. and Bloch, L. *Foreign Medical Graduates in the United States.* Cambridge: Harvard University Press, 1969.
10. *Directory of Approved Internships and Residencies, 1972-73* Chicago: American Medical Association.
11. *Medical Licensure Statistics for 1971.* Chicago: American Medical Association, 1972.
12. *Evaluation in the Continuum of Medical Education.* Philadelphia: National Board of Medical Examiners, June 1973.
13. Unpublished data from tabulations of INS-NSF 1972 tapes done in the Office of International Health Manpower Studies, Division of Manpower Intelligence, Bureau of Health Resources Development, August 1972.
14. Theodore, C.N., Haug, J.N., and Martin, B.C. *Selected Characteristics of the Physician Population, 1963 and 1967.* Chicago: American Medical Association, 1968.
15. West, K.M. Training for Medical Research: The World Role of the United States. *Journal of Medical Education* 39:238-64, 1964.
16. *Biomedical Research Manpower — for the Eighties.* Resources for Medical Research Report No. 11. Washington, D.C.: Department of Health, Education, and Welfare, December 1968.
17. Division of Manpower Intelligence, Bureau of Health Resources Development, Health Resources Administration. *The Supply of Health Manpower — 1970 Profiles and Projections to 1990.* DHEW Publication No. (HRA) 74-29. Washington, D.C.: Department of Health, Education, and Welfare, 1974 (in press).
18. Haug, J.N., Roback, G.A., and Martin, B.C. *Distribution of Physicians in the United States, 1970.* Chicago: American Medical Association, 1971.
19. Stevens, R. and Vermeulen, J. *Foreign-Trained Physicians and American Medicine* DHEW Report No. (NIH) 73-325. Washington, D.C.: Government Printing Office, 1972.
20. Butter, I. and Schaffner, R. Foreign Medical Graduates and Equal Access to Medical Care. *Medical Care* 9:136-43, 1971.
21. Stevens, R. *American Medicine and the Public Interest.* New Haven: Yale University Press, 1971.
22. Medical Education in the United States, 1972-73. *Journal of the American Medical Association* 226:893-989, November 19, 1973.
23. Figures for internships and residencies are given in: Graduate Medical Education. *Journal of the American Medical Association* and *Directory of Approved Internships and Residencies*, selected years.
24. Datagram. The National Intern and Resident Matching Program, 1966-72. *Journal of Medical Education* 48:106-9, 1973.
25. Special Studies. *Directory of Approved Internships and Residences 1969-70.* Chicago: American Medical Association.
26. Stewart, W.H. and Altenderfer, M.E. *Health Manpower Source Book. Hospital House Staffs.* U.S.P.H.S. Publication No. 263, Section 13. Washington, D.C.: Government Printing Office, 1961.
27. *Report on Licensure and Related Health Personnel Credentialing.* DHEW Publication No. 72-11. Washington, D.C.: Government Printing Office, 1971.
28. Medical Education in the United States. *Journal of the American Medical Association* 198:226, 1966.
29. Knobel, R. The Performance of Foreign Medical Graduates on U.S. Licensure Examination. Unpublished manuscript, Georgia State University, 1972.
30. Derbyshire, R.C. *Medical Licensure and Discipline in the United States.* Baltimore: Johns Hopkins Press, 1969.
31. *Developments in Health Manpower Licensure: A Follow-up to the 1971 Report on Licensure and*

Related Health Personnel Credentialing. DHEW Publication No. (HRA) 74-3101. Washington, D.C.: Department of Health, Education, and Welfare, June, 1973.

32. Kosa, J. The Foreign Trained Physician in the United States. *Journal of Medical Education* 44:46-51, 1969.
33. Theodore, C., Silver, G., and Haug, J. *Medical School Alumni, 1967.* Chicago: American Medical Association, 1968.
34. Halberstam, J. and Dasco, M. Foreign and U.S. Residents in University Trained Hospitals: An Investigation of U.S. Graduate Education. *Bulletin of the New York Academy of Medicine* 42:182-208, 1966.
35. Dasco, M., Antler, L., and Rusk, H. The Foreign Medical Resident Training in the United States. *Annals of Internal Medicine* 68:1105-13, 1968.
36. Halberstam, J. and Marsh, G. Personality Stereotypes of United States and Foreign Medical Residents. *Journal of Social Psychology* 68:187-96, 1966.
37. Margulies, H., Bloch, L., and Cholka, F. Random Survey of U.S. Hospitals with Approved Internships and Residencies: A Study of the Professional Qualities of Foreign Medical Graduates. *Journal of Medical Education* 43:706-16, 1968.
38. Mason, H.R. Foreign Medical Schools as a Resource for Americans. *Journal of the National Association of College Admissions Counselors* 5:16-20, 1970.
39. Mason, H.R. A Profile of 314 Americans Graduating from Foreign Medical Schools. *Journal of the American Medical Association* 209:1196-99, 1969.
40. Unpublished data, Robert J. Weiss, M.D. Boston: Harvard Center for Community Health and Medical Care, 1973.
41. *Foreign Medical Students in the Americas: 1971-72.* DHEW Publication No. (HRA) 74-27. Prepared by B. A. Lockett, F. Sullentrop, and K. N. Williams. Washington, D.C.: Government Printing Office, 1974.
42. McGuinness, A.C. ECFMG Examinations, United States Citizen Candidate Performance. *Journal of the American Medical Association* 214:1685-86, 1970.
43. Greeley, D.M. American Foreign Medical Graduates. *Journal of Medical Education* 41:641-50, 1966.
44. Mason, H.R. and Ruhe, C.H.W. Students Transferring from Foreign to U.S. Medical Schools in Advanced Standing, 1959-1966. *Journal of Medical Education* 44:561-70, 1969.
45. Bamford, J.C., Jr. Student Transfers from Foreign Medical Schools. *Journal of Medical Education* 46:431-35, 1971.
46. Medical Education in the United States. Undergraduate Medical Education . *Journal of the American Medical Association* 218:1204-28, 1971.
47. *DIME Dialogue.* No. 3, p. 6. Washington, D.C.: Association of American Medical Colleges, 1973.
48. Hunt, H.L. Medical Education and American Students at Guadalajara and Bologna. *Journal of the American Medical Association* 218:869-71, 1971.
49. Sodeman, W. The American Student Abroad. Can We Bring Him Back Earlier? *Journal of the American Medical Association* 218:872-73, 1971.
50. *Journal of the American Medical Association* 222:1045-46, 1972.

TABLES

Table Number		Page
1.	Foreign medical graduates in comparison with all physicians in the United States, by major professional activity: 1970	11
2.	Foreign physicians and surgeons admitted to the United States in comparison with number of U.S. medical graduates: 1962-73	12
3.	Foreign physicians and surgeons admitted to the United States as immigrants, by country or region of last permanent residence: 1953-72	20
4.	Foreign physicians and surgeons admitted as immigrants, by region of last permanent residence: 1966, 1969, and 1972	20
5.	Foreign physicians and surgeons admitted as immigrants by region of birth and by region of last permanent residence: 1972	20
6.	Foreign physicians and surgeons who changed from nonimmigrant to immigrant status, by region of birth: 1966-72	21
7.	Number and percent of foreign physicians and surgeons admitted as immigrants who changed from nonimmigrant status: 1966-72	21
8.	Foreign physicians and surgeons admitted as immigrants, by region of birth and visa status: 1972	21
9.	Foreign physicians and surgeons admitted as nonimmigrants, by region of birth and by region of last permanent residence: 1972	22
10.	U.S.-born foreign medical graduates in the United States, by country of graduation: 1970	22
11.	Physicians in the United States under and over 40, by country of graduation: 1963, 1967, and 1970	23
12.	Physicians in the United States, by age group and country of graduation: 1963, 1967, and 1970	24
13.	Physicians in the United States, by sex and country of graduation: 1963, 1967, and 1970	25
14.	Physicians in the United States under 40 years of age, by sex and country of graduation: 1963, 1967, and 1970	25
15.	Foreign medical graduates in comparison with all physicians in the United States, by major professional activity and country of graduation: 1970	25
16.	Physicians in the United States, by specialty and country of graduation: 1970	27
17.	Physicians in the United States in selected specialties, by country of graduation: 1970	28
18.	Foreign medical graduates in the United States in selected specialties, by major professional activity: 1970	28
19.	Foreign medical graduates in metropolitan or nonmetropolitan areas of the United States, by region of origin: 1970	29
20.	Number and percent of physicians in each State by country of graduation: 1970	30
21.	Distribution of U.S. medical graduates and foreign medical graduates by State: 1970	31
22.	Ten highest ranking States on basis of population, foreign medical graduates, U.S. medical graduates, and proportion of foreign medical graduates: 1970	32
23.	Number of States plus the District of Columbia by proportion of foreign medical graduates in specified major professional activity: 1970	33
24.	Number of approved internships offered in the United States and its territories and possessions in relation to graduates of United States medical schools: selected years, 1939-40 through 1973-74	34
25.	Foreign medical graduates in graduate training programs in the United States, 1950-51 through 1972-73	35
26.	Foreign medical graduates serving as interns and residents in affiliated and nonaffiliated hospitals in the United States, by size of hospital: 1972	36
27.	Number of foreign medical graduates serving as residents in affiliated and nonaffiliated hospitals in the United States: 1963-64 through 1972-73	37
28.	Foreign medical graduates as percentage of house staffs in individual hospitals: 1967	37
29.	Foreign medical graduates as percent of all residents, by specialty: 1963-64 through 1972-73	38
30.	Total residents and foreign medical graduates in residencies, by specialty: 1970	39
31.	Examinations given by the Educational Council for Foreign Medical Graduates: 1958-73	40
32.	Percentage distribution of persons taking ECFMG examination, by range of scores and country of graduation: 1969	41

Table Number		Page
33.	New licentiates representing additions to the medical profession, by country of graduation: 1950-72	41
34.	Foreign medical graduates examined for licensure, by State: 1964-72	43
35.	Physicians examined for licensure by State of examination and country of graduation: 1972	44
36.	Foreign medical graduates examined for licensure by region of graduation: 1972	45
37.	Foreign medical graduates in the United States by country of graduation and specialty board certification: 1970	46
38.	Foreign medical graduates in the United States, by language group and specialty board certification: 1970	47
39.	Number of specialty board certifications, by board and country of medical education: 1972	48
40.	Application activity to U.S. medical schools: 1947-48 through 1972-73	50

APPENDIX TABLES

Appendix Table		Page Number
1.	Foreign physicians and surgeons admitted as immigrants, by region and country of last permanent residence: 1966, 1969, and 1972	91
2.	Foreign physicians and surgeons admitted as immigrants, by region and country of birth and by region and country of last permanent residence: 1972	93
3.	Foreign physicians and surgeons admitted as nonimmigrants, by region and country of birth and by region and country of last permanent residence: 1972	95
4.	Foreign medical graduates in the United States, by specialty and major professional activity: 1970	97
5.	Proportion of foreign medical graduates in each location of the United States, by major professional activity: 1970	99
6.	Number of residents in affiliated and nonaffiliated hospitals in the United States, by specialty and country of graduation: 1972	101
7.	Residents in hospitals by geographic division and State of practice and country of graduation: 1972	103
8.	Percentage of foreign medical graduates passing ECFMG examination, by country of graduation: 1970-72	105
9.	Foreign medical graduates examined for licensure, by State: 1964-72	107
10.	Foreign medical graduates examined for licensure, by country of graduation: 1972	109

BLANK PAGE BLANK PAGE

CHAPTER

III

ACTION ALTERNATIVES IN RELATION TO QUALITY, ACCESSIBILITY, AND COST OF HEALTH CARE

BLANK PAGE BLANK PAGE

Available data, such as those just reviewed, do not throw much light on the issues of the impact of the utilization of FMGs on the quality, accessibility, and cost of health care in the U.S. At present, there are no direct measures of the quality, cost, or nature of the health care services provided by FMGs in the United States, or of the types of patients to whom they are providing service. Until studies such as those suggested in the previous section are undertaken, one can only infer from available data and expert opinion what the impact of FMGs might be and suggest possible policy options and action alternatives based on these inferences. This inferential approach is hampered by the fact that most available data and opinions about FMGs do not take account of the wide variation in the backgrounds of foreign physicians or look at trends over time. Nevertheless, a number of action alternatives related to national policies will be identified and assessed in this chapter to stimulate thinking about and research on FMGs in the United States.

These action alternatives are not recommendations; they are ideas to be discussed. Their ultimate feasibility and implementation are issues to be decided by others. They are presented as though they were discrete actions, but this does not imply that they are mutually exclusive. Two or more action alternatives taken together might have synergistic or multiple effects, necessitating a careful assessment of the ramifications of both single and combined actions. Obviously, the ultimate outcome is envisioned as a coordinated set of policy options along a broad front, each action alternative focusing on some aspect of the FMG situation, but all working together toward the same national goals.

BACKGROUND

The migration of foreign-trained physicians to the United States and the place of the FMG once here has received official attention of varying degree from time to time, most explicitly in 1967 as part of the work of the National Advisory Commission on Health Manpower. President Lyndon Johnson established the Commission to "develop appropriate recommendations for action by government or by private institutions, organizations, or individuals for improving the availability and utilization of health manpower" (1, p. 1), and a Panel on Foreign Medical Graduates was named.

One overriding recommendation was made in the Report of the Commission which impacted significantly on FMGs (1, p. 18):

> The United States should produce a sufficient number of physicians to meet its needs and, further, . . . should assist other countries, particularly developing nations, to improve their systems of medical education and their levels of medical practice and public health.

Three other recommendations were also stated which were directed specifically at FMGs (1, pp. 43-44):

> . . . at a minimum, foreign-trained physicians who will have responsibility for patient care should pass tests equivalent to those for graduates of U.S. medical schools. The National Board of Medical Examiners provides an objective testing service which should be utilized just as it is for graduates of U.S. schools. Issuance of an immigrant visa on the basis of Third Preference should be contingent upon satisfactory performance in the examination.
>
> . . . before foreign medical graduates are permitted to enter training programs with responsibility for the care of patients, they should be required to participate in an orientation and educational program during which their competence in the basic and clinical medical sciences, in English, and other appropriate fields would be assessed, and remedial instruction provided where necessary. . . . Such orientation programs should be conducted by a consortium of medical schools, hospitals, and educational institutions on a regional basis. . . .

> . . . a Commission on Foreign Medical Graduates be established outside of government. Financed by appropriately interested foundations and health associations, with contributions from the Federal Government if necessary, such a Commission could gather and analyze data on FMGs which are presently unavailable from any source. It could then provide advice to all institutions, in and out of government, which are involved with FMGs, and coordinate the various actions which may be taken to implement an overall national policy.

Although these recommendations have been widely disseminated since the appearance of the Commission Report, they have not be implemented. In 1970, the Commission on Foreign Medical Graduates (CFMG) was established under the sponsorship of eight national professional associations, but the report of the CFMG on its studies of FMG problems has not been completed. The CFMG will merge with the ECFMG by summer of 1974, although its functions will continue. Some of the recommendations made by the Commission and the Panel (2) seem as appropriate today as they were in 1967, and they are included in the discussion of action alternatives in this chapter.

THE CURRENT SITUATION

The data reviewed in Chapter II do make clear that increasing numbers of FMGs are entering the U.S. each year and becoming permanent residents. FMGs are proportionately more often found in graduate medical education positions (especially in nonaffiliated hospitals) and in full time hospital care than USMGs. They are most likely to be found in metropolitan areas, especially on the East Coast. FMGs tend to be younger and more often female than USMGs. They are less successful in obtaining unrestricted, permanent licenses to practice than USMGs. An unknown, but substantial, number of FMGs are practicing with temporary or institutional licensure only. FMGs educated in English-speaking countries are usually more successful in passing U.S. medical licensure and credentialing examinations than those educated elsewhere. Since more FMGs are coming from Asia, they may be less conversant with our language and health care practices than earlier FMGs, although no direct evidence for this exists. The few studies that have been undertaken in the area of quality of care suggest that FMGs are *perceived* by U.S. medical educators and themselves as less proficient than USMGs.

These data have led some U.S. physicians and health officials to conclude that FMGs taken as a whole dilute the quality of health care provided to Americans, decrease the number of educational and professional opportunities for American students and doctors, and do not alleviate the problem of geographic maldistribution of health care services in the United States.

QUALITY OF MEDICAL CARE

If FMGs are assumed to provide a quality of medical care not equivalent to that provided by graduates of U.S. medical schools, then relevent policy options include reducing the number of FMGs providing medical care to Americans and/or upgrading the skills of those who provide such care. One means of reducing the total number of FMGs in the United States is to reduce the numbers coming to this country. An action alternative often advocated in this context is modification of existing immigration laws and policy.

Immigration Policies and Laws

As discussed in Chapter II, virtually all foreign-born FMGs enter the United States either as exchange visitors (J-visa) or as immigrants, and in very recent years, the immigrant group has comprised, to a large degree, exchange visitors who have changed status. These facts suggest that action alternatives to reduce physician immigration must focus on those who come as exchange visitors. One action alternative which has been suggested is "*to terminate the present international educational exchange program and replace it with a more systematic and nationally coordinated international exchange program involving formal agreements between the United States and the governments of other countries.* This might be organized on a bilateral agreement basis, through multilateral agreements involving the World Health Organization or a combination of both. Under such arrangements, the United States could agree to

provide specified types of graduate medical training for individuals selected by the government of a developing country (or a consortium of medical schools in that country) to fill faculty or key clinical posts in that country. Candidates selected for such training opportunities would be assured positions on the completion of the training experience and would be committed to return to their home country" (3, p. 49). This action would require mutual agreements on international policy and extensive international cooperation which would no doubt demand lengthy and involved negotiations. Existing legislation might have to be amended and State Department participation would be required.

The historical changes in exchange visitor regulations, especially regarding the requirement to leave the U.S. for a two year period, were reviewed in Chapter II. There is some sentiment in other countries for a more stringent application of that provision. For example, in 1971, a Report of the Inter-Ministerial Group on the Brain Drain prepared for the Government of India recommended that *all exchange visitors in the U.S. be required to return to their home countries after completion of their training and to reside in the home country for four years before becoming eligible to immigrate to the U.S.* (4, p. 59). This requirement would prohibit the FMG from residing and working in a third country (e.g., Canada) for a period of time and then returning to the United States.

Enforcement of a requirement for exchange visitor trainees to return to the home country and extension of the time requirement from two to four years might decrease the number of FMGs who eventually settle in the United States in two ways. First, it might reduce the number of physicians applying for training via the exchange visitor route. Second, it might reduce, but not necessarily eliminate, the eventual return to the United States of those who still elect to come here for training. To return to the home country for four years might be perceived by the FMG as something other than a temporary, short-term arrangement. It might also provide an opportunity for professional and personal roots to be established and thus make emigration to this country less attractive.

Two recent studies (5, 6) show that when the requirement to leave the U.S. for a two year period was in effect, over two-third of the FMG interns and residents who were in the United States in 1963/64 were also here in 1971/72. These studies suggest that a "return home" requirement would have to be strictly administered and enforced to insure that trainees leave the U.S. after their training. This implies that improved and additional Federal mechanisms are needed for monitoring the emigration of FMG trainees from the United States. If the requirement that social security numbers be assigned to aliens were extended to exchange visitors as well, this would facilitate the monitoring process.

If a four year "return home" requirement were vigorously pursued, it might shunt more physicians into the immigration pathway. To implement reduction of influx of FMGs, both the exchange visitor route and the immigration route would have to be considered because the two are closely intertwined. A coordinated approach involving both routes would be most effective. If physicians were removed from the nationwide shortage schedule (Schedule A), approximately three-quarters of the immigrant FMGs would be affected, since labor certification is required for non-preference immigrants, two occupational preference categories, and all Western Hemisphere immigrants. *Basic professional standards should be revised for all immigrants admitted in classifications requiring labor certification, as well as all nonimmigrants admitted under "H" visas, in order that physicians admitted to this country to practice medicine, are in fact, eligible for full, unrestricted licensure.*

If it were determined that physicians were scarce only in specific geographic areas, an FMG would not automatically be given labor certification upon meeting the other qualifications. He would have to demonstrate that he was planning to reside in a scarcity area, and the Department of Labor would have to assure that no unemployed U.S. physician was willing to relocate and accept employment there. Physicians could be removed from Schedule A, but a professionally sound formula or standard would have to be devised which would allow designation of geographical locations as physician shortage areas. The Department of Labor is subject to court action if an alien successfully challenges such a formula or its application in determining shortage areas. Development of such a formula is not an easy chore, as those responsible for developing similar procedures to identify physician shortage areas in which to place National Health Service Corps physicians and to evaluate educational loan-forgiveness programs have discovered. *Methods for development of a professionally sound formula which would allow designation of specific geographical locations as physician shortage areas could be explored.*

Graduate Medical Education

Some reasons for FMGs settling in the United States are related to "push" factors, and are outside the purview of the U.S. Government. Others are more

amenable to modification within the United States because they are related to "pull" factors. Action alternatives which would limit immigration of FMGs to the United States by reducing the incentives for foreign physicians to practice here can be considered.

As noted earlier, internship and residency training opportunities appear to be a key factor in FMG immigration because, regardless of eventual career plans, postgraduate training is the avenue by which most FMGs enter the United States. Aside from the obvious opportunity for specialized training not available throughout the world, the economic incentive for interns and residents is strong. Recent AMA data indicate, for example, that the mean annual salary in 1972 in hospitals not affiliated with universities was about $10,140 for interns and $11,210 for residents (7, p. 932); salaries in affiliated hospitals are somewhat lower. The trend in salaries continues upward, however. Consequently, the salaries available to foreign-trained physicians serving as house officers often exceeds what they could make at home, either in training or, in some cases, in practice.

The output of graduates from U.S. medical and osteopathic schools is expanding. If the numbers of training programs are not increased simultaneously, USMGs would intensify competition for training positions and reduce the opportunities available to FMGs. Federal support to domestic medical schools could play an important role in determining whether greater numbers of U.S. graduates compete for graduate training positions filled by FMGs at present.

Raising the quality of graduate medical training abroad could indirectly impact on quality of care in the U.S. and numbers of FMGs coming to this country. Lack of adequate opportunities for postgraduate training in donor countries has been identified as an important cause of physician migration (8, 9) and an international conference sponsored by the Josiah Macy, Jr., Foundation in 1970 concluded that developed countries should assist in strengthening such training programs (10). The development of "centers of excellence" was seen as a means of diminishing the outflow of physicians from developing countries. In general, they are proposed for postgraduate work, and are not simply an expansion or upgrading of undergraduate medical school programs. *Centers of excellence are seen as a mechanism to improve the health status of the developing countries and as a possible means of retaining foreign physicians in their own countries* (or in their own regions) or of encouraging the return of those physicians who have already immigrated to the United States or other developed countries for advanced training or employment.

Before supporting the development of new program centers, studies need to be undertaken of the impact that existing centers (such as the Jinnah Postgraduate Medical Center, the All-India Institute, and the Programas de Centros Multinacionales) have had upon health care in their nations (11, 12). Important questions regarding their relevance to the primary health problems of their people, their goals, their financing, and their administration need to be explored.

Educational and Professional Requirements

Another set of action alternatives which relate to the national goal of providing quality medical care for all Americans involves increasing the educational and professional requirements of FMGs. Depending upon the entry point into the health care system, these requirements currently can include ECFMG certification, internship, FLEX or other State licensure examinations, and perhaps specialty board certification. The most critical requirements center on those involving examinations.

Along those lines, a valid measure of the competence of all physicians to deliver quality care is sorely needed. Accordingly, recent proposals by The Committee on Goals and Priorities of the National Board of Medical Examiners as part of its review of evaluation procedures in medical education would *establish an entirely new system of examination, applicable to medical graduates of domestic and foreign schools alike* (13). A "Qualifying A" examination is to be devised "to evaluate performance characteristics requisite for providing patient care in a supervised setting." Successful performance on Qualifying A (among other things) would qualify a candidate for a "permit to practice in a supervised setting," and this permit would be required of all graduates (from both U.S. and foreign medical schools) for entrance into residency training. Furthermore, the Committee has agreed that an evaluation procedure is needed which will better assess English language capability and potential adjustment to the U.S. medical education and health care delivery system. To this end, it was recommended that a new evaluation instrument be designed, and successful performance on it would be a prerequisite for the Qualifying A examination for foreign-born FMGs. Should these recommendations eventually be implemented, this two-stage qualifying procedure for entrance into residency training for FMGs would not only provide a more comprehensive screening device, it might also have some depressive effect on physician migration to the United States.

Actions such as those proposed by the National Board for a new examination structure take time to plan, test, and implement. As an interim step, therefore, modification of existing examinations has been suggested as a feasible approach. Since the ECFMG certification process is the principal screening mechanism for ensuring that FMGs enter the U.S. health care system at roughly the same level as USMGs, one action alternative could be to make this examination more stringent, for example by raising the passing score to a higher level, using the examination as it is currently structured. Another possible interim measure might be the substitution of National Boards Parts I and II for the ECFMG examination. Existing regulations for eligibility as a non-candidate (for certification as a Diplomate) require modification by the National Board of Medical Examiners in order for FMGs to sit for the examination. At present the examinations are given only in the United States and Canada and,under special circumstances,in selected foreign locations. It should be emphasized that the Federal government has little leverage in these matters, which are essentially the concern of professional and educational institutions. Furthermore, it could be expected that such steps might be protested by, for instance, U.S.-born FMGs.

Other considerations of an economic nature must be noted in connection with these action alternatives. Raising the required professional standards for participation in Federally or State-financed health care delivery programs implies that salaries must be made commensurate with the higher standards. This in turn suggests that a basic question of cost be addressed: shall the same numbers of physicians (who meet the higher standards) be utilized, regardless of the higher costs implied, or should task analysis studies be done to determine if the utilization of physician extenders, other professionals, or mid-level personnel would provide quality care with less additional cost?

Furthermore, establishing nationwide standards as to the quality of medical services and/or Statewide guidelines as to the requirements for health professionals in State institutions will not immediately eliminate the presence of FMGs who are not fully qualified. Consequently, implementation of these types of action alternatives implies that greater care will need to be taken to ensure that unqualified or marginally qualified FMGs are not driven deeper into unrecognized or borderline positions.

Another action alternative that might curtail the number of FMGs coming to the United States would be *modification of the ECFMG regulations limiting candidates to only one repeat examination.* These steps might be expected to decrease the influx of FMGs to this country over the short run, but foreign schools conceivably could modify or expand their curricula to provide their students with the material needed to achieve the passing grade on the ECFMG. Thus, in the long run, actions of this sort might result in a population of FMGs better assimilated into the U.S. medical care system, but not necessarily an appreciable decrease in the number entering the system. If this modification were made, there surely would be protest from U.S.-born FMGs who were not allowed to repeat the examination.

Most of the action alternatives suggested above for changing the requirements for entry into the U.S. medical care system (particularly into graduate medical education) are likely to invite resistence and charges of unfairness from the FMG population seeking entry into an approved internship and residency program or full State licensure. For example, any effort to make the ECFMG examination more difficult would bring objections from foreign physicians already here who have failed at least one time or who have not yet taken it; similar objections also might be anticipated from foreign physicians—or, more important, U.S. students still abroad who expect to take it in the near future.

Another important caveat to the overall effectiveness of the action alternatives discussed above should be noted. None of the presently existing examinations adequately measures the competence of the FMG to communicate with an American patient. This ability to communicate effectively with a patient is considered one of the more important determinants of the quality of care for any physician. If this communication skill cannot be tested appropriately, there is no assurance that the quality of care delivered by a foreign medical graduate would be predicted accurately by successful performance on any examination. This is one area in which the National Board proposals would appear to be a significant step forward.

Government financed health programs are one area in which raising professional requirements has been suggested as a feasible alternative. *With a reasonable time period (e.g., five years), all physicians serving in public institutions or the National Health Service Corps or in other ways receiving payment under Medicaid or Medicare could be required to be fully licensed in order for the program to qualify for continued Federal funding.* Some exception to this requirement might be provided for bona fide interns and residents in approved training programs for a stipulated length of time (e.g., the length of the full residency program up to the Chief Residency year). Recognition of internship or residency

status could be contingent, furthermore, upon successful fulfillment of some specified criterion, such as passage of the Qualifying A examination proposed by the National Board of Medical Examiners. In any case, it should be stressed that the impact of such an action would have to be weighed carefully. The number of physicians in these programs who currently do not meet such requirements are not known at present, and early implementation of such an alternative is probably not possible.

More relevant to FMGs are professional requirements in State-financed institutions. In order to staff public institutions, most States issue temporary or limited licenses valid only under certain conditions or for a particular institution. Data on the exact numbers of FMGs who are not fully licensed and working in State mental hospitals are not available, but there are indications that the number is quite high. For example, data from a recent survey of State mental hospitals conducted by the American Psychiatric Association indicated that 60 percent of the filled psychiatric positions in the hospitals responding were held by FMGs (14). One-fifth of the hospitals had over 80 percent FMGs, and at least five hospitals were staffed completely by FMGs. Clearly, State mental hospitals and other public institutions such as chronic care hospitals, county hospitals, and tuberculosis sanitariams represent areas where an acute physician manpower shortage would exist without continued utilization of FMGs.

A recent judicial decision in Alabama established minimum constitutional standards for adequate treatment of the mentally ill and retarded who are involuntarily confined (15). This case may bring the question of quality of care provided by temporarily licensed FMGs to national prominence. The decree specifically stated that mental health personnel in State institutions must meet the licensing and certification requirements promulgated by the State of Alabama for those engaged in private practice elsewhere in Alabama. It also prescribed the minimum number of treatment personnel (by professional category) for each unit of 250 patients which would satisfy staffing requirements. If the decision is upheld (it is currently on appeal in the U.S. Court of Appeals in New Orleans as case No. 72-2634), and if similar decrees are issued elsewhere, FMGs holding temporary or limited institutional licenses could not longer be qualified to practice. Thus, the "Alabama decision" could have the effect of curtailing the number of training or employment opportunities, especially for FMGs.

With regard to nationwide standards of quality of care (as opposed to treatment in State mental institutions), P.L. 86-778 provides that the Secretary of Health, Education, and Welfare develop "guides of . . . recommended standards as to the level, content, and quality of medical care and medical services" (16) in order to help State agencies expand the coverage and improve the quality of medical care, particularly on behalf of needy and low-income individuals. The Federal Government could move ahead more directly in carrying out this legislated mandate. Other Federal legislation (P.L. 92-603) provides for expanded peer review in the form of professional standards review organizations (PSROs), as a means of evaluating the quality of care provided by the entire health care delivery system (17). Promulgation of these types of quality of care guidelines could well have the effect of decreasing the utilization of foreign physicians or at least that portion of the FMG population which is not fully licensed. It would appear that further Federal consideration of these areas is needed, in order to ensure that steps taken to implement these alternatives would be consistent with overall national policies regarding FMGs.

Additional Training

Provision of training for those FMGs who are not fully qualified but who are legally entitled to remain in this country is another means of improving the quality of medical care in America. This training would be aimed at those FMGs who have not passed any examination required for licensure or appointment to hospital training programs, but who are providing patient care under limited or temporary licenses or in unrecognized positions.

One action alternative would be to provide immigrant FMGs with one year of clinical clerkship similar to the last two years in U.S. medical schools or the year of supervised medical training given U.S. citizens pursuing the "Fifth Pathway." This training might precede qualifying examinations for foreign-born FMGs.

Many FMGs may require special training to enable them to achieve their maximum potential. A barrier to the optimum effectiveness of some FMGs is their lack of facility with the English language and idiom, even when they may have passed written examinations in English. An action alternative to assist these FMGs would be to *provide intensive programs in language*

training for FMGs who plan to remain in the U.S. Some such courses are currently offered at a number of universities; a variety of courses would be needed, tailored to the proficiency the FMGs already have in basic, idiomatic, and scientific English.

The effectiveness of some FMGs may also be hampered by their lack of experience in, and unfamiliarity with, health care delivery in this country. The recommendations of the National Advisory Commission on Health Manpower and the guidelines of the AMA Council on Medical Education both call for *orientation programs* for such FMGs. The Council's guidelines recommend that those hospitals which appoint FMGs have a program of activities which will assist the new trainees in adjusting to their day-to-day work and the American culture (18, p. 351). Very few programs have developed. One is sponsored jointly by St. John's Hospital in Detroit and St. Louis University. Such programs could be evaluated and, if judged effective, duplicated elsewhere. Language and acculturation programs could be combined in many cases, of course.

Due to the heterogeneity of the FMG population, it is difficult to specify the exact content of such programs. They would include the organization and operation of the U.S. health care delivery system, health care institutions, and medical laws and ethics, as well as the expectations of various U.S. patients regarding the provision of medical care, and other important issues such as individual worth, illness, and death. Individual counseling might well be needed for those FMGs with special problems in adapting to the U.S. scene. Perhaps the work of the American Council for Refugees in New York City could provide a model for such counseling.

Several considerations suggest that such programs would be best provided in a university medical school setting. The resources required for such programs are probably beyond the means of all but a few of the major centers of graduate medical training. The university is already equipped to offer a large portion of the proposed curriculum. The economies of scale realized by providing a few programs with large enrollments rather than many programs with relatively smaller enrollments could be considerable. In addition, if one objective is to achieve a standardized and homogeneous level of competence among FMGs entering graduate medical training, this is more likely to be accomplished by a standardized university-based curriculum.

Some hospitals and medical schools are currently conducting review courses for the ECFMG examination. Heretofore, programs of this nature have been privately funded, for the most part, and have served relatively few FMGs. *Another action alternative would be to provide more programs of this type with public funding.* Before implementing this alternative, detailed information would be needed about such factors as the heterogeneity of the FMG groups enrolled, the total costs of various programs, and the results to be expected. Many medical educators are critical of these courses as they now exist. The Division of Manpower Intelligence (DMI) of the Bureau of Health Resources Development (BHRD) is at present supporting an evaluation of existing review programs to assess more definitely their effectiveness.

One possible source of resistance to any action alternative to upgrade FMGs' skills cannot be overlooked. Aid to programs which improve graduate educational and employment opportunities for foreign nationals, while U.S. citizens are denied the opportunity of a medical education, engender a notable lack of political support. Clearly, the review courses would have to be offered to U.S. nationals who attended foreign medical schools. Beyond that, a gradual reduction of total financial support for these programs to some optimal level, correlated with increases in the output of U.S. medical schools and/or a decrease in FMG influx would seem to be a desirable corresponding action.

ACCESSIBILITY OF MEDICAL CARE

Many experts believe that the "medical manpower crisis" in the United States is as much or more due to a shortage of services as a shortage of physicians. They think that if the available physicians were better distributed geographically (more in rural areas) and in terms of specialty (more in primary care), America's health care needs could be met. If it is true that FMGs are not helping to solve the problem of maldistribution of health care services, then relevant policy options include providing incentives for FMGs to move from urban to rural areas and from other specialties to primary care. To direct such programs at FMGs alone, however, would seem politically unsound. Any loan forgiveness or financial incentives program for FMGs would have to be a part of a larger program directed at all medical graduates in this country.

Financial Aid

Special stipulations might be written into any legislation providing loans, scholarships, or other stipends to FMGs. For example, a provision for loan-forgiveness might be extended to FMGs participating in language, orientation, and review programs if they choose careers in selected specialties or in selected geographical areas. This may prove to be an important lever, particularly if some existing proposals to replace Federal formula grant support of training institutions and programs with Federally guaranteed or insured student loan programs are implemented. Another alternative might be to make the choice of selected specialties or areas a mandatory criterion for financial aid. This would have to be carefully formulated as an incentive and would have to be compatible with aid to U.S. students, so that it would not be interpreted as a means of coercing poorer foreign nationals into undesirable positions not filled by U.S. graduates.

A study of post-World War II State-sponsored programs for USMGs which provided loan-forgiveness for practice in shortage areas showed that only one (Kentucky's) actually succeeded (19). The majority of beneficiaries of these programs chose to buy their way out, while a few defaulted. The study did not indicate whether those who did go to shortage areas remained there. The implications of this for similar programs for FMGs should not be overlooked in any consideration of this alternative.

Other economic incentives, such as higher pay and more fringe benefits for FMGs working in certain areas or specialties, might also be considered. This action alternative would run directly counter to those which are designed to reduce the incentives for FMGs to come to the United States, however, and cannot reasonably be extended only to FMGs in any case.

Expand COTRANS

Expansion of the Coordinated Transfer Application System (COTRANS) has been suggested as a means for increasing the numbers of U.S. graduates and thus increasing physician supply. Over 560 U.S. students from foreign schools have been placed in U.S. schools through COTRANS, but eligible students abroad are now unable to find a vacancy in a domestic school for their third and fourth years. This is due in part to the number of transfers of students from U.S. schools (e.g., from other degree programs or two-year medical schools). Thus, the number of places open to COTRANS applicants are limited. Regardless of whether such places are expanded significantly, however, U.S. citizens studying abroad would benefit from an expansion of the COTRANS program to include a centralized matching service which could provide information about applications, vacancies, interviews, and perhaps a single fee for transfer applications. *Intensive review courses could be developed which would assist the U.S. student in preparing for Part I of the National Board Examination* and facilitate his entry into the COTRANS program if vacancies should become available for those students. Such a program should be considered only as a short-term measure to facilitate the early return of the numbers of U.S. citizens abroad at present; it should not be developed as a continuing route which would, in fact, circumvent the admission criteria and basic science curricula of accredited U.S. schools.

One advantage of this action alternative is that it provides for an increase in the output of domestic medical schools on the basis of a minimal investment. Another advantage is that transferees will in all likelihood be more easily absorbed into the American medical system after graduation than either U.S.-born FMGs or foreign-born FMGs. A major limiting factor is the number of transferees who can be accommodated in third and fourth year programs in medical schools without seriously overtaxing the resources primarily planned for the regular four-year student body. Unlike the teaching facilities needed for pre-clinical instruction, however, clinical teaching facilities in the United States can be expanded with relative ease through the use of community hospitals. Many medical schools opened since the late 1960s have already demonstrated this. Taking the first two years of medical school abroad in lieu of preclinical medical education in the United States raises serious considerations. If the Federal Government should support such a program, it would actually be an encouragement to U.S. citizens to go abroad for the first two years of their education to schools where administrative procedures and course content are not equivalent to those in U.S. medical schools.

Some of the proposed action alternatives to upgrade FMG skills and increase educational and professional requirements in certain programs would decrease the number of FMGs working for lower wages in situations which are not now attractive to USMGs. Proposed special training programs for FMGs would also add to medical education costs. It is appropriate to consider the possible costs involved in three potential action alternatives:

1) replacing FMGs entering the graduate medical education process by an equivalent number of domestically produced physicians;

2) expanding the COTRANS program to replace a given annual influx of foreign-born FMGs by an equivalent number of U.S.-born students in foreign medical schools; and

3) providing training programs for FMGs in the United States which consist of English language, clinical clerkship, and orientation to the U.S. health care system and culture.

It would perhaps be equally appropriate to estimate the cost of replacing FMGs with psychiatric social workers, psychologists, or other professionals in State mental hospitals. There is also a need for cost-benefit studies and task analysis to determine the medical care impact and economic effects of replacing FMGs with physician extenders or other mid-level personnel in situations where this may be possible. At this time, however, only cost estimates related to the three action alternatives noted above will be presented.

Expand Domestic Output

The first program involves a scheduled expansion of domestic productive capacity, the incremental rate of output from which is assumed to equal the decrement in the rate of admission of FMGs into domestic graduate medical education programs. It is assumed that this expansion of capacity will be accomplished by increasing the number of four-year medical schools.

In reviewing the experience of developing medical schools during the decade of the 1960s, Smythe suggests that the expected duration of time from initial authorization of a new medical school to the graduation of the first class of physicians is nine years (20). The number graduated that first year averages 35 percent of the projected first-year class size. The minimal elapsed time between authorization of a new school and its granting of the first M.D. degree is eight years, including four years of planning and implementation before the first class is enrolled.

In projecting the possible course of events, the expansion of domestic capacity is assumed to conform to the experience of the group of institutions classified as developing four-year schools without major commitments to education of other health professionals and making little use of existing facilities (20, 21). In this way, projections are made on the basis of the experience of "regular" medical schools starting essentially from scratch, and the analysis is confined to a sample of institutions having an homogeneous pattern of growth. The experience of these institutions during their development was as follows. Typically, four years passed between authorization of the school and admission of the first class. The average projected first-year class size was 90 students. For these institutions, basic science facilities averaging 360,000 square feet, clinical facilities averaging 460,000 square feet, and 380 in patient beds were planned.

Costs associated with medical school construction were reported to average $52 per square foot over the decade of the 1960s, while start-up costs averaged $80,000 for the first year in the type of school under consideration (20). Using these figures with the pattern discussed in the preceding paragraphs, one can project a capital cost of some $43 million and an accumulated operating expense of some $34 million before a newly created institution reaches its planned capacity output of 90 doctors per year. This rate of output can then be sustained for an annual operating budget of some $4 million. All these costs are, of course, measured in 1960-decade dollars.

If it is desired eventually to replace a yearly influx of 3,000 FMGs with an equivalent number of USMGs by expanding domestic capacity through the financing of new medical schools of the type discussed above, the construction of some 34 such institutions would be required. The cost of such an undertaking might be calculated as follows. Thirty-four medical schools at $43 million each in the 1960s is a total capital outlay of $1.46 billion 1960-decade dollars. If all these institutions were authorized at the same time, a total of $1.16 billion 1960-decade dollars in operating expenses would be accumulated before the desired equilibrium

output of 3,000 M.D.s per year were obtained twelve years later. If this program were started in 1974, say, then a total of $2.62 billion 1960-decade dollars would be spent by 1986. At the current rate of inflation, however, a 1960-decade dollar will be worth approximately 1.46 1974 dollars, so that roughly $3.8 billion of today's dollars would be dispersed over that period of time.

Such a program will result in increasing the number of four-year medical schools by more than one-quarter of the current number. More significantly, increasing the number of fully activated four-year schools by 34 between 1974 and 1986 would require that the rate of expansion of medical schools over the period more than double that of the period 1959-71, in which 16 new four-year institutions were authorized and admitted their first classes of medical students. Consequently, if this underlying rate of expansion is to be maintained, then acoomplishing the objective of replacing 3,000 FMGs per year by 1986 while maintaining the overall rate of growth of the number of physicians in practice requires that the rate of expansion of medical schools in the next decade be more than triple that of the previous one.

A tripling of the rate of construction of new medical schools might strain the system's ability to accommodate an increase in the demand for the specialized resources involved without undesirable side effects. Moreover, if such a program were attempted over the next twelve years, it would no doubt cause a great deal of inflation in the labor markets for faculty and support personnel, with the result that the realized cost might be considerably more than the estimated $3.8 billion.

Expand COTRANS

The second program involves expanding capacity in the last two years of medical school – the clinical science-intensive programs – to accommodate an increase in admissions of COTRANS transfer students. It was noted earlier that at the present time many potential COTRANS transfers are not being accepted by domestic programs because of inadequate capacity in the last two years. Significant expansion of COTRANS must be accompanied by expansion of both clinical facilities and personnel under the existing technology of medical education which emphasizes the use of medical school facilities for clinical training.

Smythe notes an apparent shift in this trend among the newest medical schools, in that less emphasis is being placed on construction of university hospitals (20). This could mark a new focus on a decentralized or modular approach to the last two years of undergraduate medical education, with existing community facilities being utilized more intensively. If this is the case, capital expenditures to expand the last two years might be significantly less than otherwise, with the primary impact being an increase in hospital and/or medical school operating costs.

Several statistical analyses of hospital costs suggest that the impact of undergraduate medical education on expenses of affiliated hospitals is very small or zero (22, 23). The interpretation of these studies, however, is not that undergraduate clinical education in the hospital context is costless, but that typically the accounting expense is borne by the affiliated medical school. Furthermore, the fact that house staff generally bear the major instructional responsibilities in these settings suggests that some of the expenses of internship and residency programs in affiliated hospitals may be a joint cost with that of undergraduate educational activities.

In any case, it is likely that there are enough existing hospitals with the requisite properties to afford a significant expansion of positions in the last two or clinical yezrs of undergraduate medical education with minimal investment in new plant. These requisites are (1) an existing graduate medical education program and (2) organizational and logistical conditions amenable to affiliation with a medical school. Where these circumstances exist, it is reasonable to assume that the desired expansion could be induced by offering capitation grants of an appropriate magnitude to selected medical schools. Such grants would provide an incentive to selected medical schools to design and implement the necessary administrative and instructional framework involving existing hospital organizations, personnel, and facilities in their clinical science programs and to accept students in addition to those from their own basic science programs.

Orientation and Review Programs

The third alternative consists of requiring FMGs, prior to their entering the graduate medical education process, to undergo English language and basic clinical science review as well as orientation to the social, cultural, and institutional setting of American medical education and health care delivery. Although recommended by the Panel on Foreign Medical Graduates of the Health Manpower Commission (2), a coordinated program of this type has yet to be implemented. Consequently, estimates of the cost can be based only on conjecture rather than historical experience.

Assuming that such a program is university-based allows one to estimate its potential cost by assuming that it will be offered in the regular curriculum of the medical school at a fixed rate per credit-hour, and that it will require full-time participation of the student for a year's time. If the charge for such tuition then is the same as that for regular tuition in private four-year medical schools, it will average some $3,000 per year per student. Such a fee is representative of the annual charge for tuition in private medical schools and thus is not as heavily subsidized as that in State or public institutions; it is not representative, however, of the full cost of tuition borne by the student, the institution, and its benefactors.

Several different examples of such a review/orientation are currently being offered. A number of English Language Study Summer Programs conducted by universities offer intensive language review. Such programs are generally 8 to 12 weeks in duration and average $400 for tuition.

There are also at least four courses currently offered for ECFMG examinees. These include a ten-week course at the University of Miami School of Medicine, which is taught in Spanish; a ten-week course at St. Barnabas Hospital in Livingston, New Jersey; and a two-part course at French and Polyclinic Hospital in New York City consisting of a six-week basic science review and a six-week general medical review. An even shorter (8-day) course is offered at Queens Hospital Center in New York. The current cost per student of the University of Miami course is $600, compared to $400 for the French/Polyclinic general medical review, $300 for the St. Barnabas course, and $100 for the Queens course.

CONCLUSION

The uncertainty which surrounds the role of the FMG in the U.S. health care system reflects in part a lack of consensus in the United States about health manpower development in general and physician education in particular. As long as foreign medical graduates are used to ameliorate a perceived shortage of medical manpower, the United States will continue to be dependent on an uncontrollable and unpredictable source of supply. Effective policies and planning for both the absolute number of U.S. physicians and their distribution, both geographically and by specialty, will be hampered by continued reliance on foreign resources. Hospital staffing shortages are a critical factor in the current situation. As long as these shortages can be met by the use of FMGs, there is little impetus to reassess the role of the physician in the hospital or to re-evaluate the service and educational functions of the internship and residency. Up to now, the United States has avoided many educational and health manpower problems through the increasing use of foreign physicians. Continued reliance on this source of medical manpower tends to delay proper development of long-range goals, policies, and programs for United States medical education capacity, and for linking these with goals, policies, and programs for the organization and financing of health care services delivery in predictable, cost-effective ways.

The action alternatives mentioned above are intended to suggest possible ways in which our national goals with regard to health care can be implemented and a coordinated policy for FMGs can be achieved. This report has not questioned the assumption that there is a current shortage of physicians (or perhaps more appropriately of health care personnel) in the United States, although this assumption is open to attack. This report also has not questioned the assumption that fully licensed USMGs are a reasonable standard against which to assess the performance of FMGs. Both these assumptions require serious consideration in any extensive health manpower planning efforts, as do assessments of the current health care needs of different types of Americans and the impact of advances in medical technology. Although these considerations all lie outside the scope of this report, they demonstrate the complexity of the FMG issue and serve to illustrate its involvement in the broader problems of quality, cost, and accessibility of health care to the citizens of the United States.

BLANK PAGE

BLANK PA

REFERENCES

1. *Report of the National Advisory Commission on Health Manpower.* Volume I. Washington, D.C.: Government Printing Office, 1967.
2. Report of the Panel on Foreign Medical Graduates. *Report of the National Advisory Commission on Health Manpower.* Volume II. Washington, D.C.: Government Printing Office, 1967.
3. Dublin, T.D. *Foreign Medical Graduates in the United States. Draft Report.* Bureau of Health Manpower Education, National Institutes of Health, August 30, 1972.
4. *Report of the Inter-Ministerial Group on the Brain Drain.* New Delhi: Institute of Applied Manpower Research, March 1971.
5. Haug, J.N. and Stevens, R. Foreign Medical Graduates in the United States in 1963 and 1971: A Cohort Study. *Inquiry* 10:26-32, 1973.
6. Stevens, R.A., Goodman, L.W., and Mick, S.S. What Happens to Foreign-Trained Doctors Who Come to the United States? A Follow-up Study of Interns and Residents in Connecticut. Unpublished paper, Yale University School of Medicine, April 1973.
7. Graduate Medical Education. *Journal of the American Medical Association* 226:921-49, 1973.
8. Purcell, E. *World Trends in Medical Education, Faculty, Students, and Curriculum.* Report of a Macy Conference. Baltimore: Johns Hopkins Press, 1971.
9. Part IV. Report on Medicine and Public Health. In: *The Professional School and World Affairs.* A Report from the Committee on the Professional School and World Affairs. Education and World Affairs. Albuquerque: The University of New Mexico Press, 1968.
10. Bowers, J. Z. and Lord Rosenheim. *Migration of Medical Manpower.* New York: The Josiah Macy, Jr., Foundation, 1971.
11. van Zile Hyde, H., editor. *Manpower for the World's Health.* Report of the 1966 Institute on International Medical Education. Evanston, Illinois: Association of American Medical Colleges, 1966.
12. Bowers, J. Z., editor. *Medical Schools for the Modern World.* Report of a Macy Conference. Baltimore: Johns Hopkins Press, 1970.
13. *Evaluation in the Continuum of Medical Education. Report of the Committee on Goals and Priorities.* Philadelphia: National Board of Medical Examiners, June 1973.
14. Unpublished data, American Psychiatric Association, August 1973.
15. Wyatt *vs.* Stickney. 334 *Federal Supplement* 1341, 1971, and 344 *Federal Supplement* 373, 1972.
16. *U.S. Code.* Annotated-Title 42. The Public Health and Welfare. Paragraph 1312. St. Paul, Minnesota: West Publishing Co.
17. *P.L. 92-603. Social Security Amendments of 1972.* Title XI. General Provisions and Professional Standards Review. October 1972.
18. Essentials of Approved Residencies. *Directory of Approved Internships and Residencies, 1972-73.* Chicago: American Medical Association, 1972.
19. Mason, H.R. Effectiveness of Student Aid Programs Tied to a Service Commitment. *Journal of Medical Education* 46:575-83, 1971.
20. Smythe, C.M. New Resources for Medical Education: Start-Up Expenditures in 22 New U.S. Medical Schools. *Journal of Medical Education* 47:690-701, 1972.
21. Smythe, C.M. Developing Medical Schools: An Interim Report. *Journal of Medical Education* 42:991-1004, 1967.
22. Carr, J.W. and Feldstein, P.J. The Relationship of Cost to Hospital Size. *Inquiry* 4:45-65, 1967.
23. Berry, R.E. Product Heterogeneity and Hospital Cost Analysis. *Inquiry* 7:67-75, 1970.

BLANK PAGE BLANK PAGE

APPENDIX

FOREIGN MEDICAL GRADUATE IMMIGRATION, EDUCATION, AND CAREER PATHWAYS

BLANK PAGE BLANK PAGE

The chart designed for Appendix A depicts the currently existing sources of information and how they might be tapped as a means of monitoring the passage of FMGs into, through, and out of the medical education and health care system in the United States. As indicated in the legend, some sources afford only partial coverage of the FMG population. Even data sources which seem to offer complete coverage may still not dovetail enough to ensure that all FMGs moving through the system will be tracked continually. Furthermore, they may have data needs of their own which are not relevant to or compatible with the needs of other users.

The flow chart has five basic paths from start to final exit. The "A" path is used by those FMGs who have a foreign medical degree, pass the ECFMG examination, and obtain a limited license in the United States. The "B" path is taken by those FMGs who meet the first two requirements of the "A" path but who do not obtain a license of any sort. The "C" and "D" paths are for those FMGs who receive a foreign medical degree but who fail or do not take the ECFMG examination. If at some point such an FMG obtains a limited license, he might move along the "C" path; otherwise, he remains on the "D" path. There is a potential connection between the "C" path and the "A/B" paths, should the FMG ever successfully complete the ECFMG examination and become certified. Finally, the "E" path is followed primarily by those FMGs on the "A" track who obtain a full and unrestricted license to practice medicine in the United States.

In addition, at least two variant paths can be traced. These involve the special programs for U.S. citizens studying medicine abroad who enter either COTRANS or the "Fifth Pathway" prior to and instead of obtaining a foreign medical degree. Obviously, these U.S. citizens circumvent the immigration step as well as the ECFMG examination.

One problem in tracking FMGs through either the medical education or health care system has been that FMGs in essence could be lost as they moved out of the purview of the Immigration and Naturalization Service (11) and into activities monitored by the Association of American Medical Colleges (AAMC) (1), the American Hospital Association (AHA) (2), the American Medical Association (AMA) (3), or other government agencies (9). This may be ameliorated somewhat by new regulations regarding the assignment of Social Security numbers to all aliens entering as or changing status to permanent resident. This would involve the Social Security Administration (Department of Health, Education, and Welfare) at the point of immigration (but is not shown at present on the diagram).

Certain other data sources are, at this writing, only potential. These include professional or educational organizations such as the American Public Health Association (APHA) and the American Psychiatric Association (APA), the American Board of Medical Specialties and the individual specialty boards, the Institute of International Education (IIE), and various student and FMG organizations. The other major potential source of data is the Federal Government itself, including the Bureau of the Census (Department of Commerce), the Internal Revenue Service (Department of the Treasury), the Social Security Administration (SSA) and Health Resources Administration (Department of Health, Education, and Welfare), and the Department of State. International organizations such as the Pan American Health Organization (PAHO), World Health Organization (WHO), Organization for Economic Cooperation and Development (OECD), the World Federation of Associations of Medical Schools, and Unesco are also potential sources of information on such topics as enrollment in medical schools, migration patterns of health professionals, and utilization of FMG returnees to the home country.

At the present time, data of an informal or anecdotal nature is available from the APA and the American Board of Medical Specialties. Also, UNESCO will be the most comprehensive source of information on U.S. citizens studying medicine abroad upon completion of a worldwide survey of medical schools in 1974, with the Western Hemisphere data being available through PAHO. Finally, WHO will eventually be a primary source of data on the international movement of physicians and nurses.

The sources of data on FMGs as they enter or leave one or another activity along one of the paths are shown by numbers enclosed in circles (for relatively complete coverage) or in triangles (for only partial coverage). A lack of sources on other hospital training and other health activity is notable. The paucity of final outcome (exit) data sources is striking. The most serious problem is the absence of any data on FMGs who emigrate from this country.

Not all the data sources for any one activity are necessarily shown; generally, only those with the most comprehensive coverage or those serving as the primary source are noted. In cases where only partial coverage by several sources is indicated, it should not be assumed that the coverage is additive and therefore more or less complete. Sources which might provide (or have provided in the past) one-time-only information, either statistical or anecdotal, are also not shown, although efforts might be undertaken to cultivate such resources for the future.

In summary, the flow chart illustrates the complexity of the FMG component of medical education and health care delivery in the United States at the moment. At least two points (shown in diamonds) are pivotal in determining the tracks for FMGs – obtaining ECFMG certification and securing limited or full licensure – and these tend to complicate the FMG picture relative to that for USMGs. Movement within immigrant and nonimmigrant visa categories makes the problem more involved, as does emigration as one possible, but unknown, outcome. The FMG component of U.S. physician manpower supply and utilization will remain the weakest input factor in the analysis and planning for health and health manpower, until a more coordinated and comprehensive data gathering and reporting system is established.

DATA SOURCES

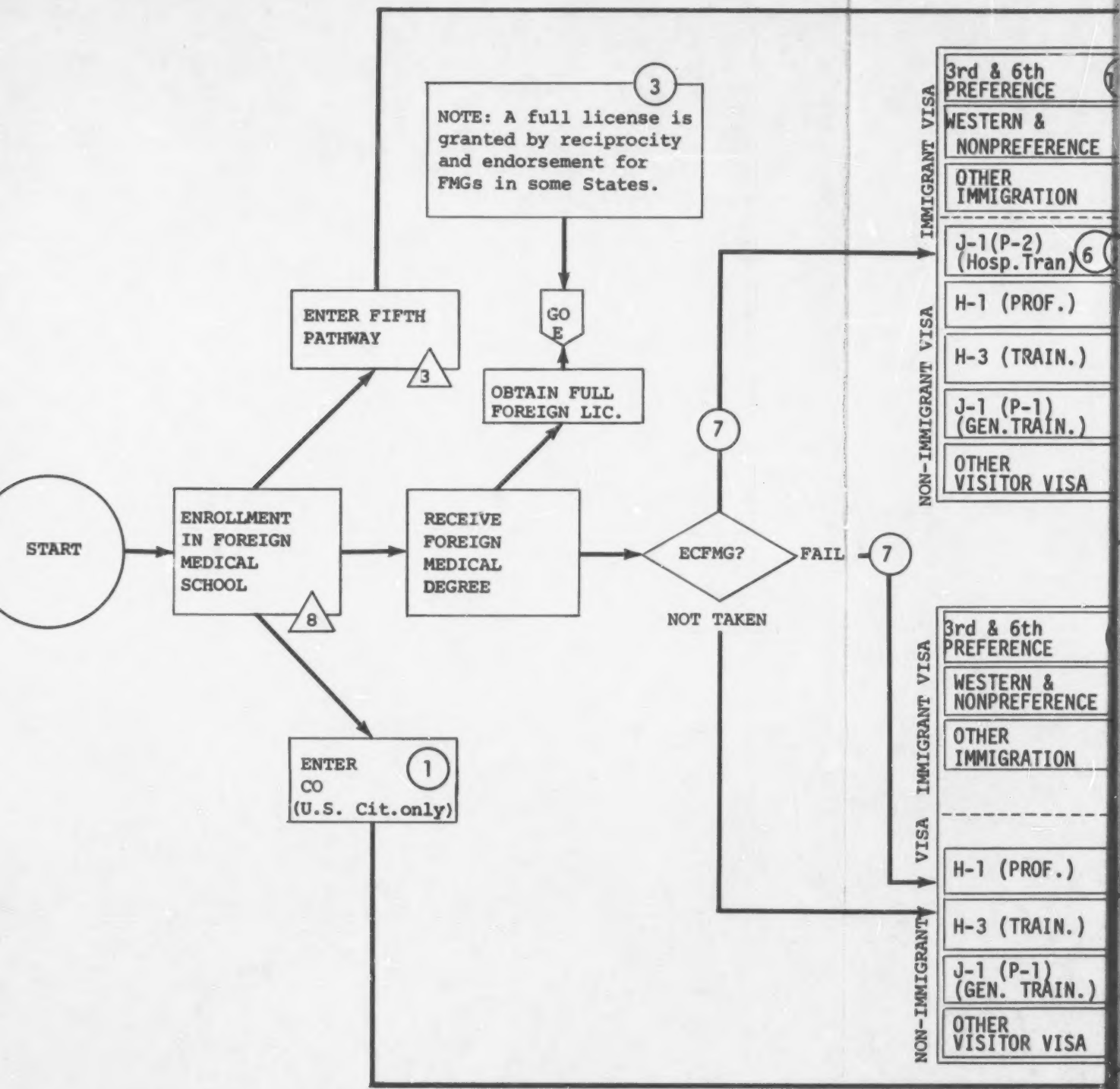
1. Association of American Medical Colleges (AAMC)
2. American Hospital Association (AHA)
3. American Medical Association (AMA)
4. American Board of Medical Specialties, and the individual specialty boards
5. Federation of State Medical Boards, and the individual State licensing boards
6. Commission on Foreign Medical Graduates (CFMG)
7. Educational Council on Foreign Medical Graduates (ECFMG)
8. United Nations Educational, Scientific, and Cultural Organization (Unesco)
9. Federal or other government agencies not otherwise listed
10. Department of Labor
11. Immigration and Naturalization Service, Department of Justice

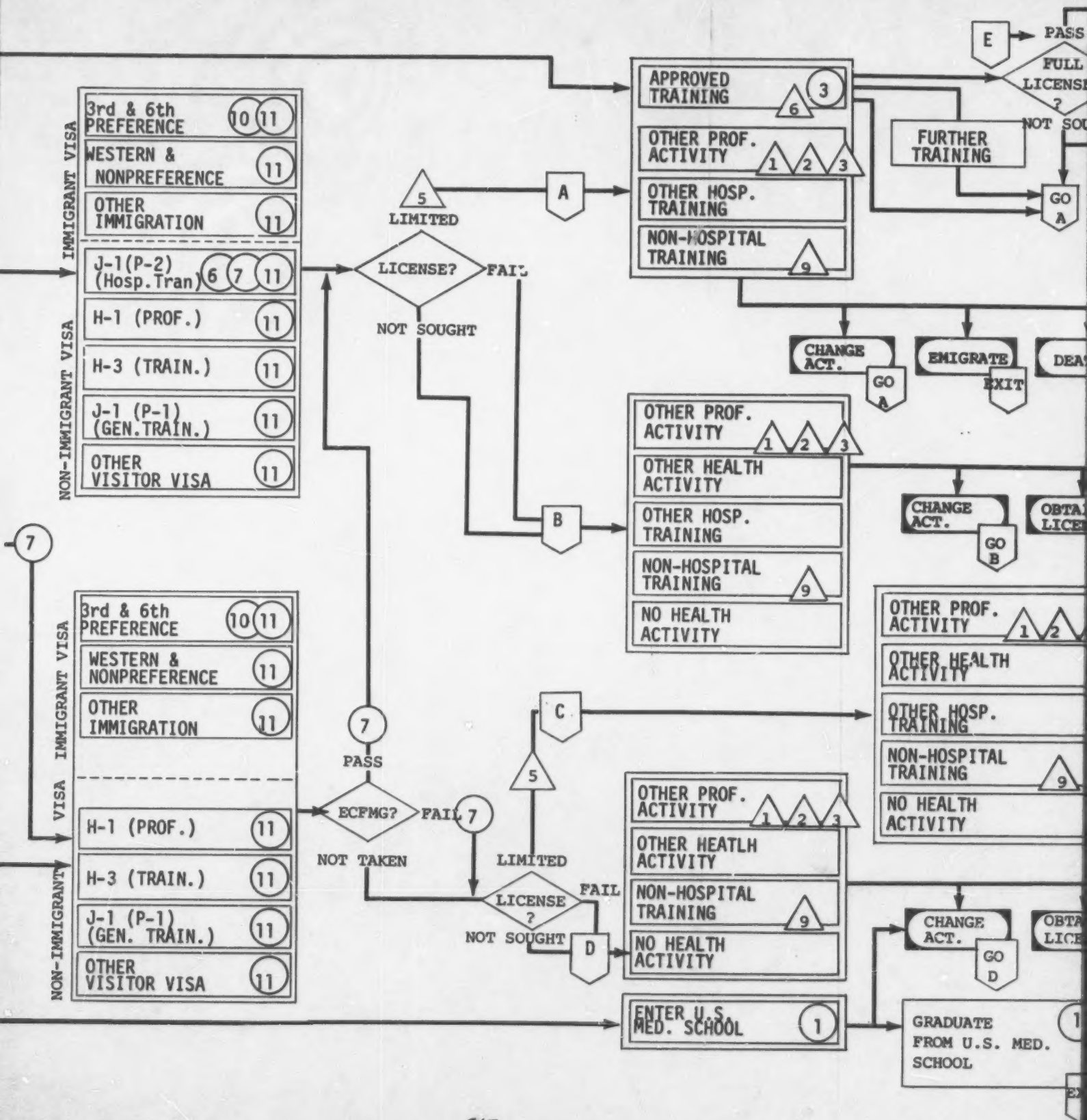
Partial coverage . . . . . △

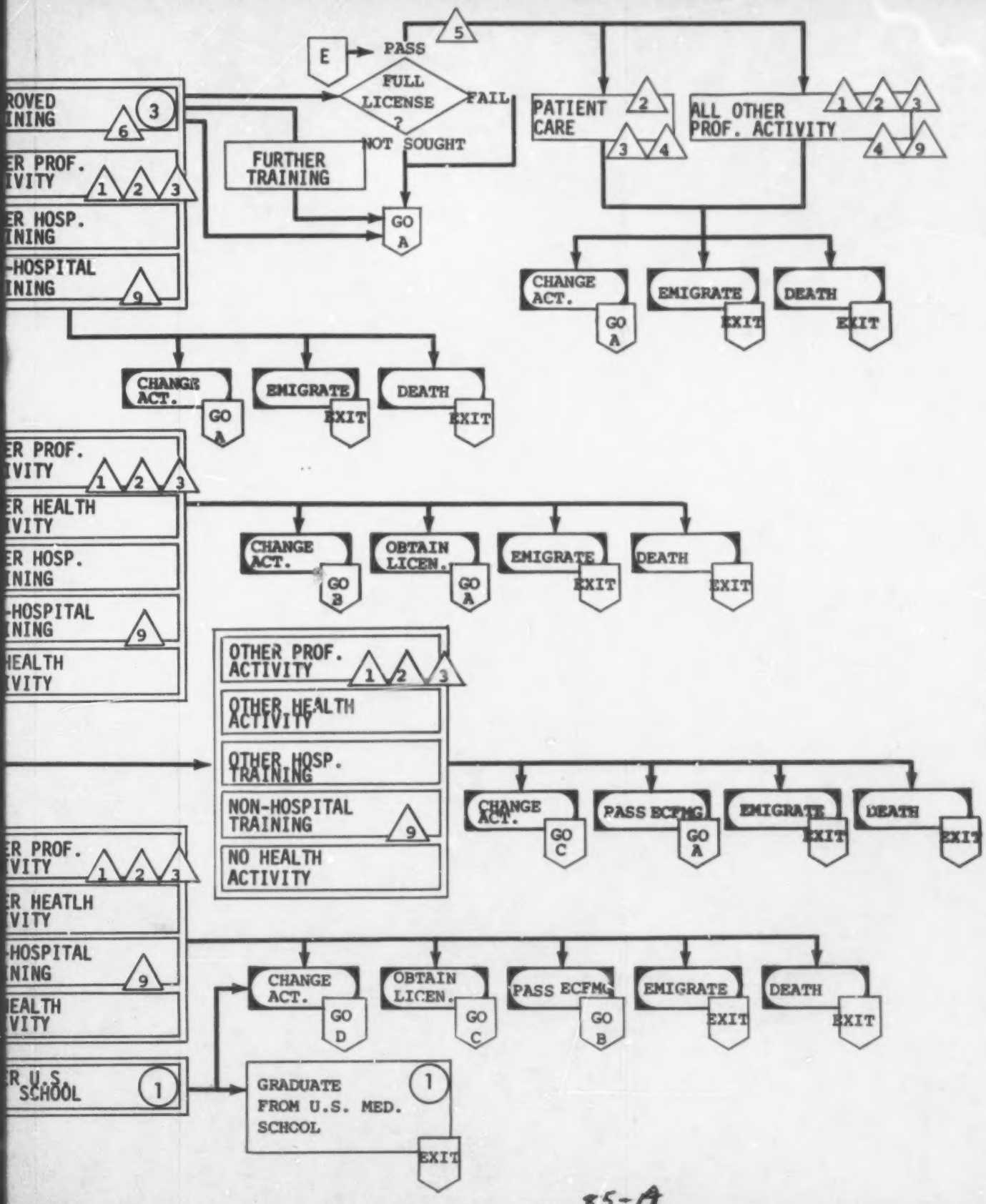
Complete Coverage . . . . . ○

ACTIVITIES

Patient Care	=	All activities of physicians involving direct patient care.
Other Professional Activity	=	Activities not involving direct patient care but requiring a medical degree. For example: administration, teaching, research, physicians with insurance carriers, pharmaceutical companies, corporations, voluntary organizations, medical societies, associations, etc.
Other Health Activity	=	Employment in the health field not requiring a medical degree: laboratory technicians, physician assistants, technologists, etc.
Approved Training	=	Internships and residencies approved by the American Medical Association
Other Hospital Training	=	Non-AMA-approved internships and residencies, externships, fellowships, hospital-based research, and other training programs
Non-Hospital Training	=	Research training in institutes, public or private organizations, laboratories, educational and other non-hospital settings
No Health Activity	=	Employment or non-employment activity for which no medical degree or health related experience is necessary
COTRANS	=	Coordinated Transfer Application System enabling U.S. citizens in foreign medical schools to transfer with advanced standing to an American medical school
Fifth Pathway	=	One year of approved clinical training in the United States to be substituted for internship/social service requirement of some foreign medical degrees


START
ENROLLMENT IN FOREIGN MEDICAL SCHOOL
8
ENTER FIFTH PATHWAY
3
NOTE: A full license is granted by reciprocity and endorsement for FMGs in some States.
3
GO E
OBTAIN FULL FOREIGN LIC.
RECEIVE FOREIGN MEDICAL DEGREE
ECFMG?
FAIL
7
NOT TAKEN
7
ENTER CO (U.S. Cit.only)
1
IMMIGRANT VISA
3rd & 6th PREFERENCE
WESTERN & NONPREFERENCE
OTHER IMMIGRATION
NON-IMMIGRANT VISA
J-1(P-2) (Hosp.Tran)
6
H-1 (PROF.)
H-3 (TRAIN.)
J-1 (P-1) (GEN.TRAIN.)
OTHER VISITOR VISA
IMMIGRANT VISA
3rd & 6th PREFERENCE
WESTERN & NONPREFERENCE
OTHER IMMIGRATION
NON-IMMIGRANT VISA
H-1 (PROF.)
H-3 (TRAIN.)
J-1 (P-1) (GEN. TRAIN.)
OTHER VISITOR VISA


IMMIGRANT VISA
3rd & 6th PREFERENCE 10 11
WESTERN & NONPREFERENCE 11
OTHER IMMIGRATION 11
NON-IMMIGRANT VISA
J-1(P-2) (Hosp.Tran) 6 7 11
H-1 (PROF.) 11
H-3 (TRAIN.) 11
J-1 (P-1) (GEN.TRAIN.) 11
OTHER VISITOR VISA 11
5 LIMITED
A
LICENSE? FAIL
NOT SOUGHT
B
APPROVED TRAINING 6 3
OTHER PROF. ACTIVITY 1 2 3
OTHER HOSP. TRAINING
NON-HOSPITAL TRAINING 9
E
PASS
FULL LICENSE ?
NOT SOU
FURTHER TRAINING
GO A
CHANGE ACT.
GO A
EMIGRATE
EXIT
DEA
OTHER PROF. ACTIVITY 1 2 3
OTHER HEALTH ACTIVITY
OTHER HOSP. TRAINING
NON-HOSPITAL TRAINING 9
NO HEALTH ACTIVITY
CHANGE ACT.
GO B
OBTA LICE
7
IMMIGRANT VISA
3rd & 6th PREFERENCE 10 11
WESTERN & NONPREFERENCE 11
OTHER IMMIGRATION 11
NON-IMMIGRANT VISA
H-1 (PROF.) 11
H-3 (TRAIN.) 11
J-1 (P-1) (GEN. TRAIN.) 11
OTHER VISITOR VISA 11
7
PASS
ECFMG? FAIL 7
NOT TAKEN
C
5
LIMITED
LICENSE ? FAIL
NOT SOUGHT
D
OTHER PROF. ACTIVITY 1 2 3
OTHER HEATLH ACTIVITY
NON-HOSPITAL TRAINING 9
NO HEALTH ACTIVITY
OTHER PROF. ACTIVITY 1 2
OTHER HEALTH ACTIVITY
OTHER HOSP. TRAINING
NON-HOSPITAL TRAINING 9
NO HEALTH ACTIVITY
CHANGE ACT.
GO D
OBTA LICE
ENTER U.S. MED. SCHOOL 1
GRADUATE FROM U.S. MED. SCHOOL
1


E
PASS
FULL LICENSE ?
FAIL
NOT SOUGHT
FURTHER TRAINING
GO A
PATIENT CARE
ALL OTHER PROF. ACTIVITY
CHANGE ACT.
EMIGRATE
EXIT
DEATH
EXIT
OBTAIN LICEN.
PASS ECFMG
OTHER PROF. ACTIVITY
OTHER HEALTH ACTIVITY
OTHER HOSP. TRAINING
NON-HOSPITAL TRAINING
NO HEALTH ACTIVITY
GRADUATE FROM U.S. MED. SCHOOL

85-A

APPENDIX

B

EXTERNALITY AND THE FMG ISSUE

EXTERNALITY AND THE FMG ISSUE

The purpose of this brief note is to suggest a framework for addressing the various issues surrounding foreign medical graduates, especially those issues involving questions about the proper role of the various levels of government in dealing with particular problems. The approach is based on the concept of externality. Externalities, or "neighborhood effects" as they are sometimes called, are said to be present when individual decision-making has extra-individual effects. The consequence of externality is that individual decisions, when viewed from some collective or social perspective, result in inefficient use of resources. In other words, the presence of externality characterizes a situation in which individual optimizing does not result in global or system-wide optimality because the interdependence of individual behavior is not taken into account in individual decision processes. To deal with the perverse consequences of externality, decisions must somehow be coordinated at the system-wide level.

In the present context, the individual decision-makers are the States which have control over the composition and magnitude of resources devoted to support of undergraduate medical education. In the context of a Federal system, the States generally determine the rates of output of physicians by virtue of their having regulatory and budgetary control over much of higher education. The global or system-wide perspective is that of the Federal Government which is concerned with the aggregate rate of output of physicians and also, perhaps, with their spatial distribution. In this context, externalities arise by virtue of the interstate migration of physicians between the undergraduate and graduate phases of their medical education. Because of this migration, many States are net exporters of physicians but are not compensated by importer States for the costs of producing physicians from which they realize no benefits. The absence of a market in which individual States are forced to confront the costs and benefits associated with the interstate flows of undergraduate doctors implies that their separate decisions will generate a different solution for the domestic production of physicians than would arise if these decisions were coordinated in such a way that the costs and benefits were reflected in the State's decisions regarding support of undergraduate medical education.

The effect of externality on the total domestic production of physicians can be deduced in a straightforward way if one assumes that, in allocating their budgets toward the alternative modes of public expenditures, each State achieves a rate of undergraduate medical education at which the marginal cost equals the perceived marginal benefit. That is, each State allocates funds to undergraduate medical education until the incremental cost of another doctor equals the incremental benefit which the State's inhabitants would gain from that doctor. Under these conditions, States which experience a net outflow of undergraduate doctors perceive their production of physicians being subjected to a tax which has the effect of reducing the benefit expected to accrue to the States' inhabitants from each physician produced. Compared to a State which realizes net migration of zero, States which are net exporters of undergraduate doctors to other States perceive lower marginal benefits relative to the marginal costs of production, with the result that they will produce fewer physicians. In other words, because such a tax on their output lowers the net marginal benefit derived from producing physicians, States which are net exporters will produce fewer than otherwise.

States which are net importers of undergraduate doctors are affected favorably by the interstate migration of physicians; in their case, the impact of externality is viewed as that of a lump-sum subsidy, or a "grant" from the net exporter States of the federation. The effect of such subsidies on decisions of net importer States will depend on the rates of change of the marginal benefits as they consider the production of more undergraduate doctors. If the marginal benefits are constant, i.e., if each additional physician is associated with same addition to the total benefit as from the preceding one, then it can be seen that the solution for the output of physicians is not distributed by a lump-sum subsidy. If, on the other hand, marginal benefits decline with the addition of physicians such that incremental additions from the State's own educational sector add less to the total benefit than those obtained in "grants" from other States, then one can see that the conditions for optimal output will be satisfied with a lesser magnitude of a State's own production than otherwise.

From the preceding, it is clear that net exporter States unambiguously produce fewer physicians than otherwise, while net importer States do not produce more. In general, then, one can conclude that the aggregate or total domestic output of physicians is diminished in the presence of the type of externality under discussion. Empirically, there is much anecdotal evidence supporting the hypothesis that the free interstate migration of undergraduate doctors does in fact have a negative effect on the capacity-determination decisions of exporter States. There are concrete signs, however, that current capacity, relative to the demand for education, is generally insufficient. That is, given current prices for the services of physicians and the current costs of becoming a practicing physician, there is excess domestic demand for undergraduate medical education. This is manifested by the current excess of qualified applicants over matriculants in medical schools, and the consumption of undergraduate medical education abroad by U.S. citizens. Thus, the States which claim the responsibility for determining the supply of education under the Federal system have created – in their failure to respond to the obvious indications of excess demand – a bottleneck in the first phase of the process through which individuals pass to become practicing physicians.

In other words, the problem of the shortage of undergraduate medical education capacity can be traced to an inappropriate supply response on the part of the States. It is inappropriate, however, only from a more general perspective, and not from the perspective of an individual State. Just as an individual whose actions generate extra-individual consequences can regard his behavior as appropriate from his own viewpoint, so can the States appropriately disregard the consequences of their own decisions for other States, even though a community of interest in coordinated decision-making may exist. This community of interest, however, justifies coordination of decision-making at a higher level of organization – just as it does at the State level for decisions respecting the supply of education for its individual citizens. This is where the Federal Government comes in. The rationale for Federal pursuit of a physician policy is the same as that for the States assuming responsibility for functions which local markets perform inadequately.

It is, therefore, at the Federal level of decision that the shortage of undergraduate medical eductional capacity is an issue in which foreign medical graduates are involved. The influx of FMGs into the physician training process serves to augment the diminished rate of passage of domestic undergraduate doctors to graduate education resulting from the bottlenecks at the State level. Evidently, the problem is: should the issue of the undergraduate doctor shortage continue to be resolved in favor of FMGs, or should it be resolved by Federal intervention to eliminate the bottlenecks in undergraduate medical education at the State level?

Consideration of FMGs as a potential solution to this problem introduces two additional issues which may or may not be relevant at the Federal level of decision. These are the "brain drain" and "quality of care" issues. We must ask, therefore, for what reasons and to what extent are these issues also relevant at the Federal level?

In terms of the decision processes involved, there are potentially three levels or strata of concern in the overall problem. First, there are the decision processes of the individual States which determine their investments in undergraduate physician education. Second, there is the perspective of the Federal Government which views the results of the decisions made at the State level and the flows of physician manpower among the States. Third, perhaps, is the perspective of the world, from which one can view the decisions made by the nations of the world and the flows of physician manpower among them. From this frame of reference, one can draw several analogies:

1. A State's (e.g., California's) view of itself as a net importer of undergraduate physicians from other States is analogous to the United States' view of itself as a net importer of undergraduate physicans from other countries. Both situations are characterized by shortages supplemented by importation.

2. A possible world view of the United States as a net importer of physicians from other countries is analogous to the United States, view of California as a net importer of physicians from other States. Both cases are characterized by inappropriate internal prices leading to non-optimal internal production and importation levels.

3. A possible world view of itself is analogous to the U.S. view of itself: this case is characterized by significant externalities reflected in inappropriate rates of exchange between individual decision-making components.

In general, therefore, the "brain drain" phenomenon can be seen to exist at the interstate as well as at the international level. But while it is clearly within the appropriate realm of Federal concern at the interstate level, whether or not its international manifestations

should concern the United States is subject to our own discretion; in the absence of an international federation or agreement, there is no compulsion except our own self-interest to consider in formulating explicit policy with respect to FMGs.

Consider now the problem of centralized price control as a means of "internalizing" the externalities that exist between independent decision-making units. According to the analogies drawn above, the world problem of price determination would be identical to that of the Federal problem of determining the appropriate rates of exchange between the States; and the Federal problem of determining the appropriate importation of FMGs becomes identical to that of California in making decisions in the context of a Federal system. While there is a price paid for each FMG we import, its magnitude eludes us because there is no explicit world mechanism or fully coordinated Federal information system which maps from its multidimensional domain of definition onto the real line where we can observe it. The Federal role with respect to the States in this regard is to install a mechanism which makes the total cost of importing both USMGs and FMGs a direct function of the quantities imported by each State. From the perspective that views the hierarchichal State-Federal decision system as appropriate, implementation of such a mechanism is a sufficient policy response to the dual FMG – undergraduate M.D. shortage issue. The States are then confronted with the socially correct prices and are left free to determine their own physician education policies to satisfy the collective demands of their respective citizens.

Likewise, the same perspective would disallow "quality of care" in relation to FMGs as an appropriate issue for Federal concern as long as regulation or control of quality is reserved for the States under the Federal system. If, however, external effects are associated with the States' adopting heterogenous quality standards, justification for Federal intervention is evident. Whether or not such externalities are present can be determined independent of the FMG issue. The existence of differential standards respecting quality of care between States might lead to externalities in at least the following ways. First, there is the contagious disease problem wherein it is clear that the actions taken by one State will have consequences for the inhabitants of neighboring States. The significance of this problem with regard to FMGs is not clear, however. Second, there may be situations where substandard medical care in one State will result in other States bearing the burden if residents of the former become welfare recipients in the latter as a direct consequence of their receiving improper or inadequate treatment, becoming disabled, and migrating to States with higher welfare payments.

In addition to the externality argument, an argument for uniform standards of care might be put forward on the grounds that the States are no longer the appropriate unit for setting standards of this type. Essentially, the economic value of standards can be assessed as the reduction in decision costs that are afforded to consumers who would otherwise have to resolve a great deal of uncertainty about the nature of or consequences of consuming goods and services before making a choice. This economic value of standards to the general population is inversely related to the rate of mobility of the population between States when all the States have different standards expressed in different terms. As the population becomes more mobile, it is conceivable that a point would be reached where the benefit of establishing uniform standards would outweigh the costs associated with removing freedom to set standards from the discretion of the States.

In general, however, a Federal mechanism designed to eliminate the inefficiency or externalities associated with the interstate "brain drain" would also tend to be ameliorative with regard to the FMG problem. Under such a mechanism, the price of importing FMGs would have to be set by the Federal authorities at some level greater than it is now, which is approximately zero. This would, therefore, raise the price of FMGs relative to domestic medical graduates, and would tend to have two effects. First, the States would tend to respond by increasing domestic production and reducing importation of FMGs. Second, the reduction of importation would undoubtedly be at the expense of the less-well prepared FMGs, resulting in an increase in the average level of "quality" of FMGs admitted into the domestic graduate medical education process.

The above few paragraphs focused on centralized price-setting as a means of dealing with the problem of externality between individual decision-making entities. By such a method, which could be physically imposed as a system of tariffs, a centralized authority extracts from the net importer or externally affected States compensation on behalf of exporter States which are unwilling or unable to assert property rights in the intellectual capital of individuals toward whose education they have contributed resources. It is clear, however, that resort to a central authority to establish

property rights is unnecessary if exporter States either unilaterally or in coalitions assert property rights in emigrating physicians. Within the United States, the mechanism to be employed – either an interstate tariff system administered by the Federal Government or contractual agreements between States and medical students – is subject to choice. On the other hand, if the United States adopts a policy – implicitly or explicitly – of relying on importation of FMGs as a cure for its physician production problems, then other countries may begin to assert property rights in the physicians which they produce, with perverse consequences for domestic expectations. Inquiry into the probability of such retaliation is beyond the scope of this note.

Appendix Table 1

FOREIGN PHYSICIANS AND SURGEONS ADMITTED AS IMMIGRANTS, BY REGION AND COUNTRY OF LAST PERMANENT RESIDENCE: 1966, 1969, and 1972

Region and country of last permanent residence	Fiscal year		
	1966	1969	1972
Grand total	2,552	2,756	7,143
Europe	667	579	911
Austria	16	49	15
Belgium	17	6	14
Czechoslovakia	5	10	24
Germany	81	52	72
Greece	38	36	64
Ireland	22	18	26
Italy	43	51	32
Poland	22	21	25
Spain	53	51	58
Sweden	20	8	17
Switzerland	27	12	25
Turkey	57	42	50
United Kingdom	187	140	364
Yugoslavia	12	36	33
Other	67	47	92
Americas	1,210	587	959
Argentina	115	42	45
Bolivia	19	13	23
Brazil	33	7	12
Canada	393	236	439
Chile	11	8	13
Colombia	80	47	82
Cuba	150	54	55
Dominican Republic	—	21	40
Ecuador	23	29	23
Guatemala	8	8	13
Haiti	29	27	21
Jamaica	15	14	18
Peru	46	14	36
Other	288	67	139
Asia	588	1,435	4,996
Burma	5	24	28
China (Mainland)	5	13	68
Hong Kong	26	39	45
India	40	129	1,513
Indonesia	—	28	27
Iran	78	99	459
Iraq	5	3	33
Israel	31	30	62
Japan	31	28	61
Korea	35	128	768
Lebanon	14	30	53
Pakistan	11	22	201
Philippines	259	785	782
Syria	9	8	19
Thailand	11	12	268
Taiwan	11	27	470
Other	17	30	139

(Continued)

Appendix Table 1
(Continued)

Region and country of last permanent residence	Fiscal year		
	1966	1969	1972
Africa	60	137	222
Egypt	23	96	63
Kenya	1	6	13
Libya	1	3	18
Nigeria	2	2	21
South Africa	15	8	36
Tanzania	–	2	19
Uganda	–	–	24
Other	18	20	28
Oceania	24	18	55
Australia	21	14	43
New Zealand	2	4	12
Other	1	–	–
Unknown	3	0	0

Source: *Scientists, Engineers, and Physicians from Abroad*, FY 1966 and 1967, NSF 69-10, p. 12, Washington: Government Printing Office, 1969; *Annual Indicator of Immigration to the United States of Aliens in Professional and Related Occupations, Fiscal Year 1969*, Washington, D.C., Department of Justice, June 1970; National Science Foundation, 1972 Immigration Tables D1 and D2.

Appendix Table 2

FOREIGN PHYSICIANS AND SURGEONS ADMITTED AS IMMIGRANTS BY REGION AND COUNTRY OF BIRTH AND REGION AND COUNTRY OF LAST PERMANENT RESIDENCE: 1972

Region and country	Country of birth	Country of last permanent residence	Same country of birth and last permanent residence
Grand total	7,143	7,143	5,603
Europe	654	911	436
Austria	6	15	3
Belgium	14	14	11
Czechoslovakia	34	24	22
France	9	22	5
Germany	54	72	44
Greece	76	64	60
Ireland	19	26	17
Italy	27	32	18
Netherlands	7	11	4
Poland	46	25	23
Portugal	13	13	10
Romania	47	19	19
Spain	47	58	38
Sweden	10	17	9
Switzerland	8	25	7
Turkey	51	50	43
United Kingdom	77	364	50
Yugoslavia	46	33	32
Other	63	27	21
Americas	626	959	550
Argentina	48	45	39
Bolivia	24	23	20
Brazil	12	12	12
Canada	103	439	100
Chile	11	13	10
Colombia	80	82	72
Cuba	73	55	54
Dominican Republic	39	40	39
Ecuador	25	23	22
Guatemala	11	13	11
Haiti	28	21	20
Jamaica	5	18	5
Mexico	53	54	53
Peru	40	36	34
Other	74	85	59
Asia	5,558	4,996	4,434
Burma	45	28	25
Ceylon	53	46	43
China(Mainland)	274	68	60
Hong Kong	16	45	6
India	1,802	1,513	1,410
Indonesia	47	27	25
Iran	485	459	455
Iraq	54	33	31
Israel	38	62	27
Japan	76	61	45
Jordan	15	14	6
Korea	810	768	749
Lebanon	28	53	25
Malaysia	21	14	8
Pakistan	260	201	130
Philippines	831	782	770
Saudi Arabia	0	21	0
Syria	29	19	16
Thailand	275	268	265
Taiwan	333	470	315
Other	65	44	23
Africa	259	222	146
Egypt	115	63	57
Kenya	20	13	9
Libya	1	18	0
Nigeria	24	21	16
South Africa	42	36	32
Tanzania	21	19	14
Uganda	10	24	4
Other	26	28	14
Oceania	46	55	37
Australia	36	43	29
New Zealand	10	12	8

Source: National Science Foundation, 1972 Immigration Tables D1 and D2.

BLANK PAGE

BLANK PAGE

Appendix Table 3

FOREIGN PHYSICIANS AND SURGEONS ADMITTED AS NONIMMIGRANTS [1] BY REGION AND COUNTRY OF BIRTH AND REGION AND COUNTRY OF LAST PERMANENT RESIDENCE: 1972

Region and country	Country of birth	Country of last permanent residence	Same country of birth and last permanent residence
Grand total	4,273	4,273	3,925
Europe	1,046	1,039	935
Austria	43	39	38
Belgium	21	22	19
Czechoslovakia	12	2	2
France	110	115	107
Germany	156	162	150
Greece	44	43	43
Ireland	76	79	72
Italy	66	63	61
Netherlands	22	25	19
Poland	21	16	15
Portugal	8	6	6
Romania	17	11	11
Spain	63	61	59
Sweden	35	37	34
Switzerland	41	45	40
Turkey	20	20	20
United Kingdom	193	209	166
Yugoslavia	38	34	34
Other	60	50	39
Americas	1,011	1,078	979
Argentina	106	110	103
Bolivia	5	5	5
Brazil	72	73	71
Canada	181	243	177
Chile	43	42	41
Colombia	63	64	62
Cuba	2	0	0
Dominican Republic	42	42	42
Ecuador	13	11	11
Guatemala	19	18	18
Haiti	3	1	1
Jamaica	17	19	15
Mexico	167	171	167
Peru	89	89	89
Other	189	190	177
Asia	1,976	1,936	1,807
Burma	3	2	2
Ceylon	75	74	73
China (Mainland)	50	23	20
Hong Kong	19	26	12
India	640	620	605
Indonesia	24	20	20
Iran	174	175	171
Iraq	15	14	11
Israel	33	49	31
Japan	197	199	194
Jordan	11	17	8
Korea	46	43	43
Lebanon	35	43	33
Malaysia	15	15	14
Pakistan	106	110	89
Philippines	248	233	233
Saudi Arabia	1	2	1
Syria	43	38	35
Taiwan	78	87	75
Thailand	105	106	105
Other	58	36	32
Unknown	—	4	—
Africa	169	143	138
Egypt (UAR)	16	12	12
Kenya	9	6	5
Libya	2	2	1
Nigeria	47	44	44
South Africa	36	32	32
Tanzania	10	11	9
Uganda	7	6	5
Other	42	30	30
Oceania	71	77	66
Australia	52	61	50
New Zealand	16	13	13
Other	3	3	3

[1] Exchange visitors and other temporary workers.

Source: Immigration and Naturalization Service National Science Foundation Data Tape, 1972.

BLANK PAGEBLANK PAGE

Appendix Table 4

FOREIGN MEDICAL GRADUATES [1] IN THE UNITED STATES, BY SPECIALTY AND MAJOR PROFESSIONAL ACTIVITY: 1970

Specialty	Major professional activity				
	Hospital-based practice	Office-based practice	Other activity	Total	distribution of total
All specialties	28,423	24,490	6,768	59,681 [1]	100.0
General practice	1,489	5,861	162	7,512	12.6
Allergy	37	144	46	227	.4
Cardiovascular disease	528	476	346	1,350	2.3
Dermatology	113	309	49	471	.8
Gastroenterology	180	126	125	431	.8
Internal medicine	3,576	2,699	619	6,894	11.6
Pediatrics	1,893	1,439	455	3,787	6.4
Pediatric allergy	27	42	15	84	.1
Pediatric cardiology	79	40	61	180	.3
Pulmonary disease	361	164	139	664	1.1
General surgery	3,454	2,013	281	5,748	9.6
Neurological surgery	208	237	44	489	.8
Obstetrics and gynecology	1,490	1,673	240	3,403	5.7
Ophthalmology	230	693	97	1,020	1.7
Orthopedic surgery	418	618	51	1,087	1.8
Otolaryngology	222	489	58	769	1.3
Plastic surgery	102	131	14	247	.4
Colon and rectal surgery	21	60	3	84	.1
Thoracic surgery	181	176	35	392	.7
Urology	337	461	47	845	1.4
Aviation medicine	13	14	19	46	– [3]
Anesthesiology	1,387	1,902	276	3,565	6.0
Child psychiatry	219	194	87	500	.8
Diagnostic roentgenology	194	140	34	368	.6
Forensic pathology	8	14	25	47	– [3]
Neurology	351	193	169	713	1.2
Occupational medicine	10	185	64	259	.4
Psychiatry	3,020	1,875	693	5,588	9.4
Pathology	2,076	581	722	3,379	5.7
General preventive medicine	17	34	56	107	.2
Physical medicine and rehabilitation	375	115	38	528	.9
Public health	28	92	205	325	.5
Radiology	887	558	137	1,582	2.7
Therapeutic radiology	118	95	15	228	.4
Other	1,118	426	1,162	2,706	4.5
Unspecified	3,656	221	179	4,056	6.8

[1] Including Canadians.

[2] Excludes 2,576 inactive and not classified and 1,134 with address unknown.

[3] Less than 0.1 percent.

Source: Haug, J. and Martin, B., Foreign Medical Graduates in the United States, 1970, Chicago: American Medical Association, 1971.

BLANK PAGE BLANK PAGE

Appendix Table 5

PROPORTION OF FOREIGN MEDICAL GRADUATES IN EACH LOCATION OF THE UNITED STATES, BY MAJOR PROFESSIONAL ACTIVITY: 1970

Location	Number of foreign medical graduates	Percent by major professional activity				
		Office-based practice	Interns and residents	Full-time hospital practice	Other activity	Inactive
Total	55,759 [1]	38	30	19	11	3
Alabama	147	27	23	29	16	5
Alaska	17	76	–	24	–	–
Arizona	282	35	38	17	5	5
Arkansas	25	12	52	32	4	–
California	2,961	55	10	12	15	9
Colorado	258	27	22	21	25	6
Connecticut	1,261	39	36	13	9	3
Delaware	216	37	26	29	6	2
District of Columbia	774	22	42	18	17	1
Florida	1,766	40	22	20	9	10
Georgia	434	39	20	27	13	1
Hawaii	202	53	24	8	9	5
Idaho	11	45	–	45	–	9
Illinois	4,526	40	34	15	8	3
Indiana	471	58	15	16	9	2
Iowa	317	37	34	13	13	3
Kansas	295	21	33	27	17	2
Kentucky	340	24	25	34	16	2
Louisiana	258	9	41	27	21	2
Maine	173	65	2	21	9	3
Maryland	2,243	30	31	21	16	2
Massachusetts	1,958	21	37	20	20	2
Michigan	2,369	32	44	16	7	2
Minnesota	643	29	38	14	16	2
Mississippi	67	31	19	24	19	6
Missouri	978	23	39	21	15	2
Montana	30	57	7	27	10	–
Nebraska	70	21	26	26	24	3
Nevada	14	38	14	29	14	7
New Hampshire	142	68	6	15	8	4
New Jersey	3,213	40	31	20	6	3
New Mexico	127	42	20	21	12	6
New York	15,869	38	30	19	9	3
North Carolina	310	22	25	25	25	4
North Dakota	90	67	6	21	6	1
Ohio	3,498	38	37	16	8	2
Oklahoma	105	18	18	34	27	3
Oregon	141	37	27	16	18	3

(Continued)

Appendix Table 5
(Continued)

Location	Number of foreign medical graduates	Percent by major professional activity				
		Office-based practice	Interns and residents	Full-time hospital practice	Other activity	Inactive
Pennsylvania	2,693	28	41	17	12	2
Rhode Island	491	44	24	22	7	2
South Carolina	97	16	24	40	12	7
South Dakota	70	70	3	21	4	1
Tennessee	306	21	36	25	17	2
Texas	1,539	46	26	14	11	2
Utah	43	2	37	16	37	7
Vermont	71	49	17	20	11	3
Virginia	894	47	21	20	9	3
Washington	427	55	12	13	14	6
West Virginia	462	45	18	27	7	2
Wisconsin	639	42	25	18	12	3
Wyoming	13	77	8	15	–	–
Canal Zone	21	5	33	48	14	–
Puerto Rico	1,311	48	12	31	7	1
Virgin Islands	53	36	–	53	8	4
Pacific Islands	28	50	–	46	–	4

[1] Excluding Canadians, 276 not classified, 204 with APO-FPO address, and 978 with address unknown.

Note: Percents may not add to 100 because of rounding.

Source: Haug, J. and Martin, B., *Foreign Medical Graduates in the United States, 1970*, Chicago: American Medical Association, 1971.

Appendix Table 6

NUMBER OF RESIDENTS IN AFFILIATED AND NONAFFILIATED HOSPITALS IN THE UNITED STATES, BY SPECIALTY AND COUNTRY OF GRADUATION: 1972

Specialty	Total residents	U.S. and Canadian graduates	Foreign medical graduates	graduates as percent of total residents
Total	44,858	30,418	14,440	32
Affiliated hospitals	40,922	28,720	12,202	30
Anesthesiology	1,867	806	1,061	57
Child psychiatry	419	313	106	25
Colon and rectal surgery	11	4	7	64
Diagnostic radiology	1,631	1,469	162	10
Dermatology	635	577	58	9
Family practice	855	774	81	9
General practice	113	35	78	69
General surgery	6,105	4,033	2,072	34
Internal medicine	7,688	5,168	2,520	33
Neurological surgery	600	484	116	19
Neurology	929	687	242	26
Obstetrics and gynecology	2,730	1,753	977	36
Ophthalmology	1,342	1,242	100	7
Orthopedic surgery	2,030	1,818	212	10
Otolaryngology	946	785	161	17
Pathology	2,329	1,081	1,248	54
Pathology-forensic	6	5	1	17
Pathology-neuropathology	52	37	15	29
Pediatrics	3,050	1,974	1,076	35
Pediatric allergy	109	84	25	23
Pediatric cardiology	147	90	57	39
Physical medicine and rehabilitation	342	131	211	62
Plastic surgery	288	221	67	23
Psychiatry	3,441	2,732	709	21
Radiology	1,704	1,258	446	26
Therapeutic radiology	264	173	91	34
Thoracic surgery	273	178	95	35
Urology	1,016	808	208	20
Nonaffiliated hospitals	3,936	1,698	2,238	57
Anesthesiology	87	22	65	75
Child psychiatry	91	61	30	33
Colon and rectal surgery	9	3	6	67
Diagnostic radiology	50	40	10	20
Dermatology	15	15	0	–
Family practice	186	145	41	22
General practice	158	21	137	87
General surgery	735	226	509	69
Internal medicine	609	241	368	60
Neurological surgery	9	4	5	56
Neurology	13	3	10	77
Obstetrics and Gynecology	276	84	192	70
Ophthalmology	130	110	20	15
Orthopedic surgery	180	152	28	16
Otolaryngology	27	24	3	11
Pathology	231	47	184	80
Pathology-forensic	21	13	8	38

(Continued)

Appendix Table 6
(Continued)

Specialty	Total residents	U.S. and Canadian graduates	Foreign medical graduates	Foreign medical graduates as percent of total residents
Pathology-neuropathology	4	4	0	–
Pediatrics	188	70	118	63
Pediatric allergy	2	2	0	–
Physical medicine and rehabilitation	2	2	0	–
Plastic surgery	24	17	7	29
Psychiatry	690	274	416	60
Radiology	102	58	44	43
Therapeutic radiology	23	18	5	22
Thoracic surgery	12	5	7	58
Urology	62	37	25	40

Source: Graduate Medical Education, *Journal of the American Medical Association* 226:929, 1973.

Appendix Table 7

RESIDENTS IN HOSPITALS BY GEOGRAPHIC DIVISION AND STATE OF PRACTICE AND COUNTRY OF GRADUATION: 1972

Geographic division and State	Total residents	U.S. and Canadian graduates	Foreign medical graduates	Foreign medical graduates as percent of total residents
Total	44,858	30,418	14,440	32
New England	3,258	2,113	1,145	36
Connecticut	879	479	400	46
Maine	48	44	4	8
Massachusetts	1,944	1,320	624	32
New Hampshire	100	87	13	13
Rhode Island	178	82	96	54
Vermont	109	101	8	7
Middle Atlantic	11,882	6,047	5,835	49
New Jersey	922	201	721	78
New York	8,065	3,864	4,201	52
Pennsylvania	2,895	1,982	913	32
East North Central	7,985	4,522	3,463	43
Illinois	2,529	1,187	1,342	53
Indiana	476	401	75	16
Michigan	1,945	1,091	854	44
Ohio	2,352	1,327	1,025	44
Wisconsin	683	516	167	24
West North Central	3,381	2,594	787	23
Iowa	381	309	72	19
Kansas	344	271	73	21
Minnesota	1,212	1,014	198	16
Missouri	1,199	789	410	34
Nebraska	236	206	30	12
North Dakota	1	1	0	–
South Dakota	8	4	4	50
South Atlantic	6,184	4,600	1,584	25
Delaware	63	24	39	62
District of Columbia	1,226	907	319	26
Florida	1,114	821	293	26
Georgia	574	495	79	14
Maryland	1,173	686	487	42
North Carolina	757	685	72	10
South Carolina	285	245	40	14
Virginia	814	648	166	20
West Virginia	178	89	89	50
East South Central	1,680	1,408	272	16
Alabama	377	331	46	12
Kentucky	356	265	91	26
Mississippi	179	168	11	6
Tennessee	768	644	124	16
West South Central	3,015	2,500	515	17
Arkansas	182	176	6	3
Louisiana	694	579	115	17
Oklahoma	270	228	42	16
Texas	1,869	1,517	352	19

(Continued)

Appendix Table 7
(Continued)

Geographic division and State	Total residents	U.S. and Canadian graduates	Foreign medical graduates	Foreign medical graduates as percent of total residents
Mountain	1,338	1,199	139	10
Arizona	224	149	75	33
Colorado	685	651	34	5
Nevada	1	0	1	100
New Mexico	175	162	13	7
Utah	253	237	16	6
Pacific	5,739	5,290	449	8
Alaska	0	0	0	–
California	4,704	4,365	339	7
Hawaii	196	157	39	20
Oregon	312	290	22	7
Washington	527	478	49	9
Territories and Possessions	396	145	251	63
Canal Zone	31	17	14	45
Puerto Rico	365	128	237	65

Source: Graduate Medical Education, Journal of the American Medical Association, 226:931, 1973.

Appendix Table 8

PERCENTAGE OF FOREIGN MEDICAL GRADUATES PASSING ECFMG EXAMINATION, BY COUNTRY OF GRADUATION: 1970-72

Country of graduation	1970	1971	1972
Europe:			
Austria	34	28	41
Belgium	66	55	59
Bulgaria	28	13	29
Czechoslovakia	34	29	35
Denmark	90	85	84
East Germany	25	30	0
Finland	77	67	65
France	48	35	47
Germany	51	39	49
Greece	31	20	26
Hungary	28	23	32
Iceland	79	83	85
Ireland	54	57	74
Italy	34	30	34
Netherlands	71	59	71
Norway	90	97	100
Poland	24	21	30
Portugal	48	54	59
Romania	35	25	36
Spain	29	19	23
Sweden	83	76	89
Switzerland	75	73	82
Turkey	16	14	30
United Kingdom			
England and Wales	93	92	94
Northern Ireland	86	79	82
Scotland	87	82	89
USSR	15	6	10
Yugoslavia	25	18	24
Americas:			
Argentina	48	43	51
Bolivia	17	10	19
Brazil	44	29	43
Chile	67	52	61
Colombia	31	22	28
Costa Rica	71	65	70
Cuba	20	18	19
Dominican Republic	19	11	16
Ecuador	24	11	20
El Salvador	38	22	34
Guatemala	19	21	35
Haiti	21	12	28
Honduras	26	13	16
Jamaica	73	68	86
Mexico	27	20	28
Nicaragua	30	22	16
Panama	32	26	33
Paraguay	31	27	38
Peru	30	23	33
Uruguay	72	50	67
Venezuela	50	43	39

(Continued)

Appendix Table 8
(Continued)

Country of graduation	1970	1971	1972
Asia:			
Afghanistan	16	5	7
Bangladesh	–[1]	–[1]	30
Burma	24	15	37
Ceylon (Sri Lanka)	67	49	75
China (Mainland)	14	6	14
Hong Kong	86	92	89
India	40	28	41
Indonesia	34	26	40
Iran	26	13	26
Iraq	43	26	43
Israel	70	63	85
Japan	32	21	35
Lebanon	52	39	52
Malaysia	100	95	100
Pakistan	25	15	25
Philippines	12	12	23
Singapore	89	83	88
South Korea	56	53	56
North Vietnam	–[2]	–[2]	100
South Vietnam	18	13	32
Syria	33	17	35
Taiwan	63	47	42
Thailand	42	26	42
Africa:			
Egypt	38	22	34
Ethiopia	–[2]	75	100
Ghana	–[2]	73	65
Kenya	–[2]	–[2]	100
Nigeria	49	26	55
Rhodesia	85	77	100
South Africa	94	86	88
Sudan	75	0	33
Tanzania	0	33	0
Tunisia	0	–[2]	100
Uganda	88	89	86
Oceania:			
Australia	99	96	97
New Zealand	97	91	92

[1] Country was part of Pakistan this year.
[2] No candidates took examination.

Source: *Medical Licensure Statistics for 1970, 1971, 1972.* Chicago: American Medical Association.

Appendix Table 9

FOREIGN MEDICAL GRADUATES [1] EXAMINED FOR LICENSURE, BY STATE: 1964-72

State	1964 Examinations		1965 Examinations		1966 Examinations		1967 Examinations		1968 Examinations		1969 Examinations		1970 Examinations		1971 Examinations		1972 Examinations	
	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass
Total	3,235	68	3,011	68	3,900	63	4,187	62	4,955	63	4,913	64	6,251	63	10,380	65	9,113	64
Alabama	4	100	1	100	1	0	8	75	1	100	2	100	4	100	3	67	2	0
Alaska	9	89	2	100	0	0	–[2]	–	3	67	2	100	3	100	14	86	4	75
Arizona	19	79	12	83	5	80	9	89	23	70	38	79	52	65	55	67	40	55
Arkansas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	73	14	71
California	126	74	63	79	125	86	192	85	317	77	358	53	205	44	594	60	661	49
Colorado	14	50	16	100	8	100	13	92	11	100	9	100	9	89	8	100	3	67
Connecticut	128	77	139	83	89	54	88	64	76	50	45	67	34	59	92	59	16	50
Delaware	4	50	10	60	16	38	20	85	12	83	14	64	29	59	44	89	96	63
District of Columbia	99	79	53	100	94	73	82	78	182	58	192	87	0	0	127	100	215	100
Florida	54	98	82	94	31	100	150	95	203	86	343	80	681	60	961	66	1,077	48
Georgia	21	100	27	89	16	100	23	96	27	70	26	96	32	94	76	100	135	100
Hawaii	15	53	12	92	14	79	20	85	13	92	16	88	12	100	33	48	30	67
Idaho	3	100	2	100	1	100	1	100	1	100	1	100	–[2]	–	1	0	2	100
Illinois	316	30	303	38	573	47	375	37	484	55	205	45	357	39	305	72	1,288	61
Indiana	34	100	23	100	124	67	182	71	193	59	292	48	206	35	261	31	178	31
Iowa	10	100	4	100	4	100	5	100	21	95	24	100	47	100	61	90	84	88
Kansas	11	100	12	100	9	78	23	87	7	88	12	58	44	89	52	100	96	86
Kentucky	28	96	10	70	53	81	38	84	20	75	95	71	67	70	22	100	63	100
Louisiana	–[2]	–	–[2]	–	9	100	22	86	24	88	32	88	45	87	52	58	54	59
Maine	81	52	72	63	101	57	101	60	131	47	97	55	218	60	296	51	90	100
Maryland	146	75	203	57	268	65	264	66	283	57	267	42	227	63	176	70	365	51
Massachusetts	71	45	9	100	74	64	138	71	137	37	5	100	193	60	81	74	214	63
Michigan	100	100	105	92	126	100	122	65	129	77	143	85	85	85	217	42	247	100
Minnesota	26	81	23	87	26	100	23	100	29	86	38	55	48	56	53	79	–[3]	–
Mississippi	5	100	6	100	9	33	20	95	14	100	19	89	11	91	16	94	9	67
Missouri	15	100	32	100	42	88	17	88	43	86	23	78	224	88	684	79	461	60
Montana	3	100	1	100	–[2]	–	4	100	2	100	4	100	19	100	11	82	13	15
Nebraska	0	0	0	0	0	0	0	0	0	0	1	100	4	100	8	63	9	56
Nevada	2	100	–[2]	–	–[2]	–	–[2]	–	–[2]	–	–[2]	–	–[2]	–	4	50	8	50
New Hampshire	27	63	24	92	28	86	55	85	110	78	102	68	36	69	43	63	23	65
New Jersey	71	24	169	60	135	65	139	72	337	68	427	71	693	59	483	52	253	100
New Mexico	7	43	11	9	15	33	9	56	11	64	37	46	39	62	37	70	51	63
New York	1,037	57	822	48	873	49	831	41	709	36	615	44	712	39	1,693	52	–[4]	–
North Carolina	3	33	15	60	17	94	24	96	27	56	25	80	56	47	46	65	102	52
North Dakota	6	17	10	90	21	86	12	75	20	85	12	92	18	83	66	97	80	88
Ohio	71	93	68	85	51	78	53	57	65	26	41	29	51	8	722	65	472	53
Oklahoma	–[2]	–	1	100	–[2]	–	2	50	23	100	1	100	5	80	10	50	17	100
Oregon	10	90	4	50	8	100	10	100	4	75	7	100	3	100	3	33	8	25
Pennsylvania	171	91	212	95	191	90	278	94	358	95	558	94	809	95	1,467	77	844	75
Rhode Island	12	100	32	78	19	58	31	65	41	61	24	75	21	76	14	79	21	86
South Carolina	6	100	1	0	2	50	7	71	3	67	4	100	1	100	2	100	0	0
South Dakota	9	100	1	100	5	80	2	100	15	87	1	100	11	91	11	73	20	95

(Continued)

Appendix Table 9 (Continued)

State	1964 Examinations		1965 Examinations		1966 Examinations		1967 Examinations		1968 Examinations		1969 Examinations		1970 Examinations		1971 Examinations		1972 Examinations	
	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass	Total	Percent pass
Tennessee	0	0	0	0	0	0	1	100	2	100	0	0	8	100	48	100	53	100
Texas	117	92	70	94	93	87	55	91	100	78	82	78	169	82	115	76	159	63
Utah	35	89	–[2]	–	–[2]	–	–[2]	–	–[2]	–	–[2]	–	6	83	21	81	3	67
Vermont	9	78	20	80	52	79	133	53	171	69	193	38	166	52	268	53	329	55
Virginia	166	84	188	83	456	50	459	39	292	42	200	48	214	45	458	51	826	55
Washington	25	88	39	92	42	90	44	95	61	89	94	85	139	72	149	76	71	92
West Virginia	17	88	11	73	17	88	17	76	22	41	62	40	114	42	79	68	96	47
Wisconsin	33	88	38	97	49	94	65	63	72	69	49	92	32	88	201	94	68	96
Wyoming	2	50	3	0	1	0	1	100	3	33	0	0	0	0	2	100	2	100
Puerto Rico	–	–	–	–	–	–	–	–	–	–								
Virgin Islands	–	–	–	–	–	–	19	58	121	92	76	92	92	93	124	97	121	96
Canal Zone	57	84	50	100	7	43	–	–	–	–								

[1] Excluding Canadians.
[2] Not listed.
[3] Summary report only.
[4] Data not reported by country of graduation total examinations given were 2,270; percent passing was 39.
Source: *Medical Licensure Statistics.* Chicago: American Medical Association, selected years.

Appendix Table 10

FOREIGN MEDICAL GRADUATES [1] EXAMINED FOR LICENSURE, BY COUNTRY OF GRADUATION: 1972

Region and country of graduation	Examination		Percent passed
	Total	Passed	
Grand total	9,113	5,817	64
Europe	1,394	916	66
Austria	16	12	75
Belgium	40	30	75
Bulgaria	4	2	50
Czechoslovakia	73	48	66
Denmark	2	2	100
Finland	3	2	67
France	33	20	61
Germany	105	76	72
Greece	88	50	57
Hungary	26	14	54
Iceland	4	4	100
Ireland	58	42	72
Italy	168	111	66
Latvia	1	0	–
Lithuania	3	1	33
Netherlands	13	10	77
Norway	1	0	–
Poland	81	48	59
Portugal	5	4	80
Rumania	51	29	57
Scotland	28	24	86
Spain	212	140	66
Sweden	9	8	89
Switzerland	72	52	72
Turkey	127	63	50
United Kingdom, England and Wales	89	74	83
USSR	7	3	43
Yugoslavia	75	47	63
Americas	1,472	865	59
Argentina	165	115	70
Bolivia	41	17	41
Brazil	31	23	74
Chile	37	28	76
Colombia	223	129	58
Costa Rica	3	3	100
Cuba	472	261	55
Dominican Republic	71	37	52
Ecuador	26	10	38
El Salvador	16	8	50
Guatemala	15	13	87
Haiti	34	20	59
Honduras	9	3	33
Mexico	193	107	55
Nicaragua	11	4	36
Paraguay	14	8	57
Peru	85	60	71
Surinam	1	1	100

(Continued)

Appendix Table 10
(Continued)

Region and country of graduation	Examination		Percent passed
	Total	Passed	
Uruguay	4	4	100
Venezuela	12	8	67
West Indies	9	6	67
Asia	5,955	3,824	64
Afghanistan	4	2	50
Bangladesh	3	3	100
Burma	59	36	61
Ceylon	31	30	97
China	69	32	46
Hong Kong	22	22	100
India	1,226	943	77
Indonesia	35	25	71
Iran	424	246	58
Iraq	49	43	88
Israel	32	23	72
Japan	69	44	64
Korea	716	465	65
Lebanon	46	38	83
Manchuria	2	0	–
North Vietnam	1	0	–
Pakistan	238	190	80
Philippines	2,149	1,119	52
Singapore	10	10	100
South Vietnam	5	2	40
Syria	43	32	74
Taiwan	427	308	72
Thailand	295	211	72
Africa	250	174	70
Algeria	1	0	–
Egypt	207	137	66
Nigeria	4	2	50
South Africa	35	32	91
Sudan	1	1	100
Uganda	2	2	100
Oceania	42	38	90
Australia	35	32	91
New Zealand	7	6	86

[1] Excluding Canadians.

Source: *Medical Licensure Statistics for 1972.* Chicago: American Medical Association, 1973.